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AT THE

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Shailer E. Lawton, M. D., Superintendent.

Vermont State Asylum for the Insane, Waterbury.

VIRGINIA—Eastern State Hospital, Williamsburg.
James D. Moncure, M. D., Superintendent.

Central State Hospital, Petersburg.
Randolph Barksdale, M. D., Superintendent.
W. F. Drewry, M. D., Assistant Physician.

Western State Hospital, Staunton.
Benjamin Blackford, M. D., Superintendent.

Southwestern State Hospital, Marion.
R. J. Preston, M. D., Superintendent.

WASHINGTON.—Western Washington Hospital for the Insane, Fort Steilacoom.
John W. Waughop, M. D., Superintendent.

Eastern Washington Hospital for the Insane, Medical Lake.
John M. Semple, M. D., Superintendent.

WEST VIRGINIA.—West Virginia Hospital for the Insane, Weston.
W. P. Crumbacker, M. D., Superintendent.

Second Hospital for the Insane, Spencer.
W. D. Row, M. D., Superintendent.

WISCONSIN.—Wisconsin State Hospital for the Insane, Mendota.

Northern Hospital for Insane, Winnebago.
William F. Wegge, M. D., Superintendent.

Milwaukee Hospital for the Insane, Wauwatosa.
M. J. White, M. D., Superintendent.

James H. McBride, M. D., Wauwatosa.
John B. Edwards, M. D., Mendota.

BRITISH AMERICA.

ONTARIO.—Asylum for the Insane, Toronto.
Daniel Clark, M. D., Superintendent.

Asylum for the Insane, London.
Richard M. Bucke, M. D., Superintendent.
H. E. Buchan, M. D., Assistant Superintendent.

Asylum for the Insane, Kingston.
Charles K. Clarke, M. D., Superintendent.

Asylum for the Insane, Hamilton.
James Russell, M. D., Superintendent.
Thomas W. Reynolds, M. D., Assistant Physician.

Asylum for the Insane, Mimico, Toronto.
Nelson H. Beemer, M. D., Superintendent.

Asylum for the Insane, Brockville.
Stephen Lett, M. D., The Homewood Retreat, Guelph.

QUEBEC.—Protestant Hospital for the Insane, Montreal.
T. J. W. Burgess, M. D., Superintendent.

Asile Des Alienés de Saint Jean de Dieu, Longue Pointe.
J. A. Prieur, M. D., Assistant Physician.

Quebec Lunatic Asylum, Quebec.
A. Vallée, M. D., Superintendent.

E. J. Bourque, M. D., Montreal.
G. A. LaRue, M. D., Quebec.

NOVA SCOTIA.—Nova Scotia Hospital for the Insane, Halifax.

George L. Sinclair, M. D., Superintendent.
W. H. Hattie, M. D., Assistant Physician.

NEW BRUNSWICK.—Provincial Lunatic Asylum, St. John.

James T. Steeves, M. D., Superintendent.
J. A. E. Steeves, M. D., Assistant Physician.

PRINCE EDWARD'S ISLAND.—Hospital for the Insane, Charlottetown.

NEWFOUNDLAND.—Lunatic Asylum, St. John's.

HONORARY MEMBERS.

J. C. Bucknill, M. D., F. R. C. P., F. R. S., England.
C. Lockhart Robertson, M. D., F. R. C. P., England.
T. S. Clouston, M. D., F. R. C. P., F. R. S. E., Scotland.
David Yellowlees, M. D., F. F. P. S., LL. D., Scotland.
A. Motet, M. D., France.
A. Tamburini, M. D., Italy.
Foster Pratt, M. D., Kalamazoo, Michigan.
Stephen Smith, M. D., New York.
G. Stanley Hall, Ph. D., Worcester, Mass.
Charles F. Folsom, M. D., Boston, Mass.
James Rutherford, M. D., F. R. C. P., F. F. P. S., Dumfries, Scotland.
S. Weir Mitchell, M. D., Philadelphia, Pa.

CORRESPONDING MEMBER.

Victor Parant, M. D., Toulouse, France.

NOTE.

The accompanying volume containing the proceedings, papers and discussions of the American Medico-Psychological Association, at its fifty-first annual meeting, is printed by the Council with the approval of the Association.

HENRY M. HURD,
SECRETARY.

BALTIMORE, February 12th, 1896.

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AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.

PROCEEDINGS OF FIFTY-FIRST ANNUAL MEETING.

Tuesday, June 11, 1895.

FIRST SESSION.

The meeting was called to order at 10 A. M., June 11th, 1895, in the Ladies' Ordinary of the Brown Palace Hotel, Denver, by the President, Dr. Edward Cowles of the McLean Hospital, Somerville Mass.

Dr. P. R. Thombs, of Pueblo, Colorado, a member of the Committee of Arrangements, introduced Governor McIntyre of Colorado, who spoke as follows:

Mr. President and Ladies and Gentlemen of the Medico-Psychological Association—I presume there are lady members because I see ladies in attendance—I take great pleasure in welcoming you to our State and to its capital. Knowing the hospitable tendencies of the people of this city I feel quite confident that your stay here will be pleasant. I want to thank you for coming here. We always appreciate those who appreciate us.

You cannot expect that I will make you a speech at this time. You are technical gentlemen and I have no knowledge of the branch of medicine in which you are technical. I do, however, take the interest of the layman in this subject about which you are to deliberate, and that interest grows out of the fact that while most of us may feel sure that all through life we will be able to keep out of the penitentiary, none of us are certain that we shall keep out of the asylum. To each one of us, therefore, the condition of the insane quite strongly appeals. The old idea that insane people were possessed of the devil or that the insane man was one who must be incarcerated, is fortunately passing away. The new idea which prevails, that the insane man is one who is sick from physical disease, and that the treatment should be appropriate to his particular kind of disease, puts him in a different light in the

community. Instead of merely incarcerating the unfortunate insane man an attempt is made to cure him.

I hope that in your session here you will, by comparing notes and analyzing the information that you may give one to another, arrive at a step farther in advance in the treatment of these unfortunates.

Again I welcome you to this State and to this city.

President Cowles: I have the honor, on behalf of the American Medico-Psychological Association, to thank your Excellency for your cordial and generous welcome to this beautiful city. I presume that most of us are personally strangers here, but there are few of us, I doubt not, who can not find among your citizens, the familiar faces of some who were once our neighbors.

This occasion is one of peculiar significance to this Association. Last year we celebrated the fiftieth anniversary of its organization. We celebrated it in Philadelphia, where it was organized by a handful of men, thirteen in number, representatives of the hospitals for the insane then existing in this country. To-day there are probably one hundred and twenty such hospitals which we represent, besides many institutions of like character. It is a significant occasion for a number of reasons. It is a little difficult to realize what has been covered by these short fifty years in the progress and development of our work; and we have to take some thought to adjust the differences of time and space in these matters. Fifty years ago the men who organized the Association had no thought of your great West of to day. All that we knew in the earlier years of this half-century was that there was a "Great American Desert" beyond which there was something quite impassable. But to-day we are at the place which to our founders was almost an unknown region somewhere near the distant boundaries of our country. The wilderness has been conquered and we stand almost upon the great dividing barrier, not far from the very center of our greater nation's territory. In a great and prosperous State, and in a modern city, we are welcomed by you to begin the work of the second fifty years of our Association's existence. We often little realize while events are transpiring, and as we are passing through them, how great is their significance; but we can well imagine that the meeting of this Association here to-day, under conditions inconceivable to the founders of our Association, is significant of the great expansion of our

work; and with the greater demand for it let us hope this is the beginning of greater achievements than the past has known. We have heard of your beautiful city and have come to see it. We know at once that it is beautiful, and that all which has been said of it is true; and we marvel that you have made it, in so few years, one of the twenty-eight largest cities in our country.

I thank you for your cordial welcome. We are strangers no longer for you have already made us feel that we are at home, among generous friends.

The Secretary moved that as the transactions of the last meeting have been published and the record is in the hands of each member, the reading of the minutes of the last meeting be dispensed with. Carried.

The President appointed as a Committee to nominate officers of the Association for the ensuing year the following: Dr. G. H. Hill, Iowa; Dr. C. G. Hill, Maryland, and Dr. P. M. Wise, New York.

A recess was then taken for the registration of members and the following were present during the whole or a portion of the sessions:

Adams, Geo. S., M. D., Medical Superintendent Westborough Insane Hospital, Westborough, Mass.

Clarke, Charles K., M. D., Medical Superintendent Asylum for the Insane, Kingston, Ontario.

Clark, Daniel, M. D., Medical Superintendent Asylum for the Insane, Toronto, Ontario.

Cook, George F., M. D., Oxford Retreat, Oxford, Ohio.

Cowles, Edward, M. D., Medical Superintendent McLean Hospital, Somerville, Mass.

Crumbacker, W. P., M. D., Medical Superintendent West Virginia Hospital for the Insane, Weston, W. Va.

Dewey, Richard, M. D., (Milwaukee Sanitarium), Chicago, Ill.

Dodge, R. H., M. D.,Conrad's Sanitarium, St. Denis P. O., Md.

Edwards, John B., M. D.,Medical Superintendent Wisconsin State Hospital, Mendota, Wis.

Elliott, Edward P., M. D., Assistant Physician, Danvers Lunatic Hospital, Danvers, Mass.

Everts, Orpheus, M. D., Medical Superintendent Cincinnati Sanitarium, College Hill, Ohio.

Eyman, H. C., M. D., Medical Superintendent Cleveland State Hospital, Cleveland, Ohio.

Gilman, H. A., M. D., Medical Superintendent Iowa Hospital for the Insane, Mt. Pleasant, Iowa.

Givens, Jno. W., M. D., Medical Superintendent Idaho Asylum, Blackfoot, Idaho.

Hancker, W. H., M. D., Medical Superintendent Delaware State Hospital, Farnhurst, Del.

Harmon, F. W., M. D., Medical Superintendent Longview Hospital, Carthage, Ohio.

Harrington, Arthur H., M. D., Physician, Asylum for Insane Criminals, State Farm, Bridgewater, Mass.

Hill, Charles G., M. D., Attending Physician Mt. Hope Retreat, Baltimore, Md.

Hill, Gershom H., M. D., Medical Superintendent Iowa Hospital for the Insane, Independence, Iowa.

Howard, Herbert B., M. D., Medical Superintendent Asylum for Chronic Insane, Tewksbury, Mass.

Hoyt, Frank C., Medical Superintendent Iowa Hospital for the Insane, Clarinda, Iowa.

Hurd, Henry M., M. D., Baltimore, Md.

Kirby, George L., M. D., Medical Superintendent Asylum for the Insane, Raleigh, N. C.

Mead, Leonard C., M. D., Medical Superintendent South Dakota Hospital for the Insane, Yankton, S. D.

Meredith, Hugh B., M. D., Medical Superintendent State Hospital for the Insane, Danville, Penna.

Meyer, Adolf, M. D., Pathologist Illinois Eastern Hospital for the Insane, Kankakee, Illinois.

Mitchell, Thomas J., M. D., Medical Superintendent State Lunatic Asylum, Jackson, Miss.

Ratliff, J. M., M. D., Medical Superintendent Dayton State Hospital, Dayton, Ohio.

Richardson, A. B., M. D., Medical Superintendent Columbus State Hospital, Columbus, Ohio.

Rogers, Joseph G., M. D., Medical Superintendent Northern Indiana Hospital for the Insane, Longcliff, Logansport, Ind.

Rohé, George H., M. D., Medical Superintendent Maryland Hospital for the Insane, Catonsville, Md.

Rosser, Charles M., M. D., Medical Superintendent North Texas Hospital for the Insane, Terrell, Texas.

Row, W. D., M. D., Medical Superintendent Second Hospital for the Insane, Spencer, W. Va.

Smith, Edwin Everett, M. D., Kensett, South Wilton, Conn.

Stone, William A., M. D., Assistant Superintendent Michigan Asylum for the Insane, Kalamazoo, Mich.

Thombs, P. R., M. D., Medical Superintendent State Asylum for the Insane, Pueblo, Colorado.

Tobey, Henry A., M. D., Medical Superintendent Toledo State Hospital, Toledo, Ohio.

Wagner, Charles G., M. D., Medical Superintendent Binghamton State Hospital, Binghamton, N. Y.

Warden, J. L., M. D., Assistant Physician Asylum No. 3, Nevada, Mo.

Waughop, John W., M. D., Medical Superintendent Western Washington Hospital for the Insane, Fort Steilacoom, Washington.

White, M. J., M. D., Medical Superintendent Milwaukee Hospital for the Insane, Wauwatosa, Wis.

Wise, Peter M., M. D., Medical Superintendent St. Lawrence State Hospital, Ogdensburg, N. Y.

Woodbury, Charles E., M. D., Secretary Massachusetts Board of Charities, 13 Beacon street, Boston, Mass.

Woodson, C. R., M. D., Medical Superintendent State Lunatic Asylum No. 2, St. Joseph, Mo.

The following other persons were also present:

J. L. Hildreth, M. D., Member of Massachusetts Board of Lunacy and Charity, Cambridge, Mass.

G. W. Cullison, President Board of Trustees of Iowa Hospital for the Insane, Mt. Pleasant, Iowa.

E. N. Bates, Member of Board of Trustees of Michigan Asylum for the Insane, Kalamazoo, Mich.

Samuel H. Hopkinson, Chairman Board of Trustees of Danvers State Hospital, Danvers, Mass.

The President then addressed the Association on "the Advancement of Psychiatry." (See page 47.)

Upon motion of Dr. GILMAN, seconded by Dr. C. G. HILL, the thanks of the Association were extended to the President for his very able, eminently practical and eloquent address.

Adjournment.

SECOND SESSION.

President COWLES called the meeting to order at three o'clock.

The Secretary reported for the Council that the following-named candidates had been recommended for membership:

Candidates for Active Membership.—Dr. Merritt B. Campbell, San Bernardino, California; Dr. Wm. F. Drewry, Petersburg, Va.; Dr. Walter E. Fernald, Waltham, Mass.; Dr. Arthur W. Hurd, Buffalo, N. Y.; Dr. Owen Copp, Taunton, Mass.; Dr. William A. Stone, Kalamazoo, Mich.; Dr. J. M. Ratliff, Dayton, Ohio; Dr. Jno. W. Givens, Blackfoot, Idaho; Dr. Robert Heath Dodge, St. Denis, Md.; Dr. A. H. Harrington, Bridgewater, Mass.

Candidates for Associate Membership.—Dr. Percy Bryant, Buffalo, N. Y.; Dr. Gustave Arthur Chilgren, St. Peter, Minn.; Dr. Edwin Augustus Down, Hartford, Conn.; Dr. Charles M. Holmes, Northampton, Mass.; Dr. Chas. F. Applegate, Clarinda, Iowa; Dr. Homer E. Markham, Clarinda, Iowa; Dr. Frank T. Stevens, Mt. Pleasant, Iowa; Dr. Frederick O. Jackman, Mt. Pleasant, Iowa; Dr. Milton D. Norris, Catonsville, Md.; Dr. J. Percy Wade, Catonsville, Md.; Dr. Jacob W. Wells, Independence, Iowa; Dr. Jno. C. Doolittle, Independence, Iowa; Dr. J. L. Warden, Nevada, Mo.

Upon motion of Dr. HANCKER, the members of the legal and medical professions of the city of Denver were invited to meet with the Medico-Psychological Association during its present sessions.

Dr. P. M. WISE, of Ogdensburg, N. Y., read a paper entitled "The Medical Work in the Wards of Hospitals for the Insane."

Adjournment.

THIRD SESSION.

The meeting was called to order by the President at 8:30 P. M.

In the absence of Dr. PILGRIM, Dr. ROHÉ read a paper prepared by Dr. CHAS. W. PILGRIM, of Poughkeepsie, N. Y., entitled "Dietary of the New York State Hospitals."

Doctors H. F. Pershing, Robert Levy and Charles A. Powers, a committee from the Denver and Arapahoe Medical Societies were then introduced to the Association. Dr. Pershing spoke as follows:

Ladies and Gentlemen of the Medico-Psychological Association: The Denver and Arapahoe Medical Society, our local Society, is in session now at the Public Library, about three blocks from here. The Society has sent us to you to extend to you a cordial greeting and to express its appreciation of the work that you are doing. It would be very glad if, when you have finished your programme, you would visit us at the Public Library and partake of some light refreshments.

The PRESIDENT: We are gratified for so cordial an invitation, and as the business of the evening is finished we will adjourn our meeting and go with you. Adjourned.

The remainder of the evening was spent pleasantly at the reception tendered by the Denver and Arapahoe Medical Society at the Public Library.

WEDNESDAY, JUNE 12, 1895.

FIRST SESSION.

The PRESIDENT called the meeting to order at 10 A. M., and asked for the introduction of visitors and new members.

Dr. H. A. GILMAN introduced the Honorable George W. Cullison, of Iowa, President of the Board of Trustees of the Iowa Hospital for the Insane, at Mt. Pleasant.

DR. CHARLES E. WOODBURY introduced Dr. J. L. Hildreth, of Cambridge, Mass., a member of the Board of Lunacy and Charity of Massachusetts.

Dr. WM. A. STONE introduced Mr. E. N. Bates, Trustee of the Michigan Asylum for the Insane, Kalamazoo, Michigan.

The Secretary reported that the Council had recommended Dr. Nolan Stewart, of Jackson, Miss., and W. D. Row, of Spencer, W. Va., for active membership.

Drs. GERSHOM H. HILL and CHARLES E. WOODBURY were appointed to distribute ballots and count the votes. The election of members then took place and all those recommended by the Council were elected.

Dr. G. H. Hill, for the Nominating Committee, reported as follows: For President, Richard Dewey, Illinois; for Vice President, T. O. Powell, Georgia; for Secretary and Treasurer, Henry M. Hurd, Maryland; for Auditor, W. A. Gorton, Rhode Island; for Members of the Council for three years, Walter Channing, George H. Rohé, C. R. Woodson and Henry P. Stearns.

Upon motion, Dr. Daniel Clark was instructed to cast the vote of the Association for these candidates and they were declared elected.

The Auditors reported that they had examined the accounts of the Treasurer and found them to be correct.

A vote was then taken upon the amendments proposed to article V of the Constitution by Dr. Edward Cowles at the last annual meeting.

After some discussion the first was adopted and the second was rejected.

Article V as Amended reads as follows:

The Active members of the Association shall include all past and present medical superintendents named in the official list published for 1892 of members of "The Association of Medical Superintendents of American Institutions for the Insane;" the Honorary members shall include those so designated in that list; the Associate members shall include all the assistant physicians named in the same list; it being provided that said list shall be corrected by the Council, as may be necessary to carry out the intention of the Constitution as to the continuance of existing membership.

Every candidate for admission to the Association hereafter, in either of the three above-named classes of members, or as a Corresponding member, shall be proposed in writing to the Council, in an application addressed to the President, at least two months prior to the meeting of the Association, with a statement of the candidate's name and residence, professional qualifications, and any appointments then or formerly held, and certifying that he is a fit and proper person for membership. In the case of a candidate for Active or Associate membership, the application shall be signed by three Active members of the Association, and by six Active members for the proposal of an Honorary or Corresponding member. The names of all candidates approved by a majority vote of members of the Council present at its annual meeting shall be presented on a written or printed ballot to the Association at its concurrent annual meeting, at least one session previous to that at which the election is made, which shall be by ballot at a regular session, and require a majority vote of the members present. The only persons eligible for Associate membership are regularly appointed assistant physicians

of institutions for the insane that are regarded to be properly such by the Council; and they are eligible for such membership only during the time they are holding such appointments. After holding such an appointment three years, an Associate member may become an Active member by making application in writing to the Council, and upon its approval being elected in the manner heretofore prescribed.

The PRESIDENT: At the last annual meeting the Council was empowered to purchase and conduct a Journal. The Council appointed a special committee to do the work. That committee purchased the JOURNAL OF INSANITY and having it on their hands proceeded to act as a committee of publication and carried the JOURNAL through its year to this date. Dr. Dewey, a member of the committee, was charged with the duties of managing editor. At the request of the Council he will now make a report upon the JOURNAL OF INSANITY.

Dr. RICHARD DEWEY: I took charge of your JOURNAL and established its publication office in Chicago a year ago with some misgivings, and I am sure that only the able and generous assistance of my fellow-committeemen, Dr. Cowles and Dr. Hurd, and of Dr. Blumer, my predecessor in the editorial chair, enabled me to deserve in any measure the expressions of satisfaction which I have heard. So far as contributions are concerned, they have been numerous and of high quality, in the main, and the JOURNAL is greatly indebted in this respect to accomplished confrères in and out of the Association. Indeed, the main embarrassment has been to choose out of so many excellent papers which to publish.

Judging from the experience of the year, it would be easy to secure material well worth publishing, sufficient for a more frequent issue or for a larger number of pages in the quarterly number.

Now that the JOURNAL must sustain itself, its advertising becomes important. I have been able to secure an increase in this direction. A good many advertising pages have been given on my personal request. It has been a difficult time to extend in this direction and I do not know how many advertisements will be renewed at the expiration of the contract. Those advertisers who see some results will renew more readily and I wish to suggest to the members, that if other things are equal, it would be well for your JOURNAL if you favor those firms who give us an advertisement. The circulation of the JOURNAL has increased and it is an especially valuable advertising medium, as its readers are the financial officers of large institutions.

[With reference to the finances of the JOURNAL, Dr. Dewey gave a detailed statement and presented the accounts and subscription lists to the committee, continuing as follows:]

It will be observed your JOURNAL has a small balance in the bank after paying all the expenses of the year. It was proposed by the JOURNAL com-

mittee that the managing editor should have an honorarium of $500 for the year's work. The managing editor has drawn less than one-half that amount and has been very glad to leave the balance in the JOURNAL treasury, inasmuch as the JOURNAL treasury is not over full.

Dr. H. M. HURD: The JOURNAL represents an expenditure on the part of the Association of $945.15, which was paid for the the good will of the JOURNAL; for unpaid accounts, advertising contracts and subscriptions. We paid about $500 for the good will of the JOURNAL and the balance for subscriptions and unpaid contracts.

Dr. W. H. HANCKER: It might, perhaps, enhance the efficiency of the JOURNAL if it had some other name; it might reach some of the physicians in private practice. I would like to state also that the back numbers of the JOURNAL are still in the hands of Dr. Blumer and do not belong to the Association. I would like to know if they could be purchased for any reasonable amount.

Dr. G. H. HILL: I do not know what is the policy of the Journal in the matter but I think it desirable to have a few extra copies of each issue printed for sale to those who in the future may wish to get back numbers.

Dr. RICHARD DEWEY: Two or three hundred copies of each number published in the past year are still on hand belonging to the Association. Probably 150 of each of the three numbers, July, October and January, were sent out with the view of increasing our circulation. I sent out a large number of circulars, calling attention to the JOURNAL, to public libraries, physicians in special lines of practice and to everyone else likely to subscribe. I sent sample copies to the same addresses.

Dr. C. G. HILL: We are all indebted to Dr. Dewey for the surprising statement that the JOURNAL has sustained itself so well during the first year. I would like to ask what is the probability of changing the JOURNAL, in the near future, to a monthly, and whether it would not be to the advantage of the JOURNAL to change its name to one that would appeal more to the general reading public and not confine it so closely to our own branch. Would not such a course aid in securing advertisements which are necessary to journals of this character?

The PRESIDENT: These suggestions are valuable to those charged with the conduct of the JOURNAL. Speaking for the Coun-

cil I should say that affairs are in a somewhat tentative condition. We have hardly rounded out the whole matter of getting the JOURNAL on its feet so as to know where we are.

In the matter of changing the name and the more frequent publication of the JOURNAL; if we have a superabundance of papers, as seems likely and was anticipated in setting up this new order of things, it will be very desirable to consider these matters. We are not ready for them at present. It is now a matter of ways and means for a year.

Dr. G. H. HILL: It would save correspondence if Dr. Dewey will state what we can get back numbers for, if we lose one from our file.

Dr. RICHARD DEWEY: I advised with my fellow members of the Committee on that subject. The price at the regular subscription rate is $1.25 for each extra number. That price has been made except in cases where contributors had extra numbers containing their own articles when they were furnished at one-half the price.

Upon motion of Dr. RICHARDSON, seconded by Dr. C. G. HILL, the thanks of the Association were returned to Dr. Dewey for his generous contribution of his services during the past year, and for the great interest that he has taken in the JOURNAL and his valuable report upon it.

Upon motion of Dr. TOBEY, seconded by Dr. GILMAN, the Association declined to accept the contribution of Dr. Dewey's salary for a portion of the year.

Dr. FRANK C. HOYT, chairman of the Committee of Arrangements, announced that the Association had been invited by the local profession to attend an entertainment at Manhattan Beach in the evening, to be followed by refreshments. Two cars had been chartered for the occasion which would leave the hotel door at 7.30 P. M.

Dr. G. H. ROHÉ of Catonsville, Md., read a paper entitled, "Pelvic Disease in Women, and Insanity."

Dr. ADOLF MEYER read a paper entitled, "A Few Demonstrations of Pathology of the Brain and Remarks on the Problems connected with them."

Adjourned.

SECOND SESSION.

The Association was called to order by the President at 3 P. M.

Dr. H. C. EYMAN of Toledo, Ohio, presented a paper entitled, "Fragilitas Ossium, Illustrated by a Case."

Dr. C. K. CLARKE of Kingston, Ontorio, read a paper entitled, "Thyroid Feeding in Certain Forms of Mental Troubles."

Dr. A. B. RICHARDSON of Columbus, Ohio, read a paper entitled, "The Significance of Motor Disturbances in Insanity."

Dr. DANIEL CLARK of Toronto, read a paper entitled, "A few Canadian Cases in Criminal Courts in which the plea of Insanity was presented."

Adjourned.

THURSDAY, JUNE 13TH, 1895.

FIRST SESSION.

The President called the Association to order at 9 A. M.

The Secretary reported that the Council had recommended the election of the following applicants for membership:

Active:—Dr. John Joseph Kindred, Darien Conn.; Dr. Charles M. Rosser, Terrell, Texas.

Associate:—Dr. August Hoch, Somerville, Mass.; Dr. Edward S. Abbott, Somerville, Mass.

A Ballot was taken and all were declared elected.

The Council further reported the following recommendations:

1st. That a volume of Transactions for 1895 be published similar to the volume published for 1894.

2d. That the next meeting of the Association be held in Boston, on the 4th Tuesday in May, and that the Committee of Arrangements consist of Drs. Cowles, Fisher and Channing.

3d. That Dr. Rohé be requested to lay before the Association the condition of the Rush Monument fund and to ask for subscriptions.

4th. That Drs. Dewey, Blumer and Hurd be appointed a Publication Committee of the JOURNAL OF INSANITY for the coming year, with Dr. Dewey as managing editor.

5th. That in view of the efficient services rendered to the committee of arrangements by Drs. Eskridge, Fisk, Rogers and Powers of Denver, a cordial vote of thanks be presented to these gentlemen and the Secretary

be instructed to send a formal communication expressive of them; also that the thanks of the Association be tendered in a similar manner to the Denver and Arapahoe Medical Society and to Librarian Dana, for an enjoyable reception at the public library; and to the members of the medical profession of Denver for an excursion to Manhattan Beach; and to the physicians and citizens of Denver for a cordial and unbounded private hospitality far exceeding anything known in the previous history of the Association.

All of which were unanimously approved.

The Committee on Statistical Tables made the following report:

THE REPORT OF COMMITTEE ON STATISTICAL TABLES.

To the American Medico-Psychological Association:

Your Committee to whom was referred the matter of Statistical Tables would respectfully report that the wish of the Association has been carried out, and that the forms presented at the last meeting have been published in connection with the transactions of the Association. Not sufficient time having elapsed for criticism and suggestion on the part of members of the Association, the Committee would ask further time and would respectfully urge members to place such suggestions as they have in mind which would tend to perfect the tables, in the hands of the Committee at an early date.

Very respectfully,

C. B. BURR,
P. M. WISE,
HENRY M. HURD,
Committee.

Upon motion the Committee was continued to report at the next meeting.

President COWLES exhibited some pictures of the new McLean Hospital.

Dr. T. J. MITCHELL, of Jackson, Miss., read a paper entitled, "Obscurity in the Nomenclature and Diagnosis of Insanity."

Dr. J. W. WAUGHOP of Fort Steilacoom, Washington, read a paper entitled, "Sudden Blindness and Sudden Recovery."

A paper entitled, "The Relations of Alcoholic Indulgence to Insanity," prepared by Dr. G. Alder Blumer, Utica, and Dr. H. M. Bannister, Chicago, was read by the Secretary.

Upon motion of Dr. HURD the whole question of the relations of alcoholic indulgence to insanity was referred to a committee of three, to be appointed by the President, this committee to report some feasible form of tables at the next meeting of the Association.

A paper entitled, "Studies of the Lesions produced by the Action of Certain Poisons on the Cortical Nerve Cells," prepared by Dr. H. J. Berkley of Baltimore, was presented by the Secretary.

The President announced that Doctors Blumer, Burr and Bannister would compose the Committee on the Relations of Alcoholic Indulgence to Insanity.

The following report of the Committee on Training Schools was presented:

Report of Committee on Training Schools.

The subject of the organization of Training Schools has proved a more formidable one than anticipated and we feel that it is of such importance that it is best to proceed cautiously. During the year a certain amount of information has been gathered and it is found that thirty-eight schools are in existence in the different hospitals for the insane in America. The number of institutions is in the neighborhood of one hundred and thirty, thus leaving ninety without provision for the proper training of nurses, a state of affairs that should be remedied. With some there is a feeling that the training of nurses will result in the development of the amateur doctor rather than the intelligent nurse; and others fear that too much will be left to the nurse in the management of important cases. These fears will certainly disappear with a closer study of the methods proposed.

Another dread is that too much theory is apt to interfere with practical results. That idea must be driven out of existence. While it is quite true that the training of nurses must embody the practical to the greatest extent possible, yet how can we have efficient practice without proper theory? The Committee on Training Schools feels that it cannot yet recommend a scheme of education likely to prove acceptable to all, and would ask for further time to consider the matter and to receive more extended expression of opinion from members of this Association on several points under consideration. It would recommend in a general way the adoption of a course of training not to be of shorter duration than two years. This course of training should include lectures on Primary Anatomy and Physiology, general and special-nursing and practical instruction in the preparation of foods as well as other subjects, the importance of which is obvious.

An impression seems to exist that each School should be organized with a woman at its head as superintendent of nurses. The nurses should be required to take notes and it is recommended that these notes should be submitted to the members of the medical staff from time to time for criticism and correction. Yearly examinations both oral and written should be held by the medical staff and it is considered advisable to make these examinations as practical as possible.

Particular care should be given to the teaching of proper methods of making bedside notes, and it is hoped that the development of the hospital

idea will be carried to the greatest extent possible in the course of instruction.

If the Committee is allowed to continue its existence for another year strong efforts will be made to put the whole subject of Training Schools on a basis that will not prove offensive to any member of this Association; and it will be the endeavor of this Committee to develop a scheme embodying the most practical suggestions emanating from the members as a whole.

No recommendations regarding Text Books are made at present because it is felt that this part of the subject must not be pronounced upon without very mature deliberation. It is suggested that the pages of the "JOURNAL OF INSANITY" be employed, to make known the recommendations of the Committee.

Signed, C. K. CLARKE,
For Committee on Training Schools.

The report was accepted and the Committee was continued for another year.

Doctor FRANK C. HOYT announced the details of an excursion to Glenwood Springs and return which had been arranged for those in attendance upon the meeting.

Upon motion, the memorial notices of Doctors Andrews, Fuller, Duquet, Palmer and Field were read by title and referred to the Secretary for publication. The unread papers upon the programme, which were in the hands of the Secretary or the Editor of the JOURNAL, were read by title and referred to the Secretary for publication in the Transactions.

President COWLES: Brethren of the Association: The work of this particular meeting is done, so far as we can say that the current work of our profession and special calling is at any time done. I am sure you will agree with me that the most telling things you do are often those which in the course of a single year, or month, or week, you seem only to be beginning to do. In that respect there is a certain significance in this meeting which I can hardly forbear touching upon.

This is a dividing time for us between the things of the past and the things of the future. Those who have been in attendance upon these meetings for a number of years must be impressed by the change that has taken place in the work of the Association since a few years ago. It seems to me that it was an epoch-making year, the year at Detroit, when Doctor Hurd, of the committee of arrangements, first brought forth the present plan of conducting our

meetings according to a definite programme, with papers solicited beforehand. Out of that movement seemed to grow the influence which resulted in the change in the name of the Association, and the change from the older, loosely-joined, voluntary order of things, to the present precise, definite, business-like order of our work. What it means and will yet do for us, we hardly even now appreciate. I think those who are older among us have seen distinctly, as the first fruit of it, the springing up of interest in the younger men, through the taking of them into membership, in the production of papers by them, the eagerness with which the assistant physicians join the Association, and in many other ways.

I should fail to note one of the most important effects of the new order, did I not mention the acquisition of the JOURNAL OF INSANITY as the organ of the Association. You may see in this the accomplishment of one of the primary purposes of the movement that brought about the change in our organization; this change has enabled us to hold property and to easily provide the means for acquiring it. You can not fail to have noted in the report of the Managing Editor and the Treasurer that the purchase money for the JOURNAL has been paid and the Association has contracted no debt. You have also as another result the first volume of "Transactions," which our Secretary has published for us in such excellent form. These things are the prompt indications of the new life and influence into which the Association has now entered.

This is the third meeting under the new organization and our new name. The previous two meetings rounded out the half-century, which was ended in the work of our meeting last year. To-day we have closed the first meeting of the new half-century, and the significance of it, it seems to me, is very great.

Our programme is full of significance and importance for the future. The contributions to the subject of therapeutics in the papers, upon "Pelvic Disease and Insanity," "Thyroid Feeding," and on the "Effects of Alcohol," teach strongly the newer, closer and more vital relation of our special work to general medicine. Then there has been no dearth of purely scientific pathological contributions; indeed, the two papers that we have had presented on this occasion are of peculiar importance and significance to us, and give the contradiction at once to the charge of the lack of scientific in-

terest and work among us. Again, there is the work which is both scientific and practical, that is being done in the improvement of hospital dietaries, touching the great question of nutrition which is at the bottom of all procedures to restore the physical as the basis for mental health. Let us hope that our discussion of this subject marks the beginning of great progress in this matter. Another of the contributions to the meeting that has impressed me very strongly is the paper on "The Medical Work in the Wards of Hospitals for the Insane." The method of all scientific men of these days, in the general hospitals, wherever progress is made, is the tireless observation and recording of facts. This method we must follow in order that by and by we may have facts enough to put together to learn their meaning. This is the "modern scientific method," through which all progress has been made, in the "exact medicine" of the present day. It is the method of Virchow and Louis, and the only one by which we may hope to hold our places as true physicians.

I wish to say something in regard to the past and future conduct of the Association, covering a proposed change in our Constitution, in the provision that the President should be a President-elect in advance of the time when he should take his office. It is provided that not only should he be a President-elect for a certain time, but that he should be a Vice-president for a year in anticipation of the time when he should step to the higher place in the Association. The purpose of that was to set him to thinking and preparing for the work of the presidency—to set his face to the future. The old way was for the retiring President, as he left the chair, to read his address. By force of circumstances, the officer thus retiring was often led to think rather exclusively of the past. Under the present system, the tendency is all the other way. You will have noted a recommendation yesterday to change the Constitution so as to provide that the President-elect shall take his office at the close of the annual meeting at which he is elected, instead of at the beginning of the next meeting in the following year. It amounts to the same thing, but it has seemed better in practice, that after a President is elected, we should be able to regard him as really the President, and that when the meeting is over at which he presided, the work of the office is done.

In pursuance of the action taken by two of my predecessors, I

have the honor to resign my office, which will leave it open to the accession of Dr. Dewey, my successor. As Doctor Dewey is not here, I have to regret that I am unable to invite him to take the chair and present him to you as your new President.

And now, gentlemen, I thank you for the high honor you have done me in placing me in the position of President of this Association. I look upon it as the highest honor that I have ever received or may hope to receive in my professional life.

The Association then adjourned at 12 M., to meet at Boston, on Tuesday, May 26th, 1896, at 10 A. M.

HENRY M. HURD,
Secretary.

PRESIDENTIAL ADDRESS.

THE ADVANCEMENT OF PSYCHIATRY IN AMERICA.

BY EDWARD COWLES, M. D.,
McLean Hospital, Waverley, Mass.

"The foolish man built his house upon the sand; and the rain descended, and the floods came, and the winds blew and beat upon that house; and it fell."

When we build our houses we try first to lay a firm foundation, and then to raise a good superstructure. After the house is built it must rest for its existence upon a deeper fact to sustain and maintain it. The material house is a perishable thing; the underlying purpose that upholds it and keeps it lasts from generation to generation.

The State builds its hospitals for the sick in like manner, if it builds them well. There must be the material structures before the sick can be sheltered in them. Then, whether or not they are real hospitals rests upon the understanding of the people who maintain and administer them. If personal and "political" interests creep into this essential foundation then it becomes loosened and unstable, and the hospital no longer stands for what it pretends to be. The purity of its purpose and its sacredness to humanity are prostituted; it becomes a scandal to the great cause it was built to aid. The execrations of all honest men should fall upon those who work such evils. They are of the tribe of those who were driven from the temple. It is of such that it is written: "They robbed the helpless of their bread; they stole medicine from the sick." We all join with those who pray that the waters of righteousness may descend, and come to search out the weak, and shifty, and unfaithful places in such foundations, and that the wrathful winds of heaven may beat upon such houses.

The advancement of psychiatry in this country is the business of our lives. It is a business so great in importance that it includes the study and use of all things that make for the prevention and cure of insanity, and the best cure of the hopelessly insane. We need to know not only the diseases of the nervous system, but all the diseases of the mind and body, for they contribute to insanity. It is a business that sets our faces to the future; but when we look upon our great task, our first thought must be of the foundations

upon which we have to build; how shall we add to or uphold the well-wrought results of those who have gone before? The human and the material elements, both good and bad, in these foundations upon which we have to carry on our work, have their instructive history. There are landmarks in our field of labor that, though ancient, can not wisely be removed.

In the limited time at my disposal I can do little more than to examine our foundations, to see if they were laid firmly and built upon soundly, by the honest and wise workmen among our fathers. When it is said that their work has come to naught, by other well-intentioned men, this is a serious and harmful charge.

In my discussion of the advancement of psychiatry in America the considerations that present themselves in the way I have indicated appear to fall into three divisions: (1) Our hospitals and their management; (2) the relation of psychiatry to general medicine; and (3) the promotion of progress in the hospital treatment of insanity.

I. OUR HOSPITALS AND THEIR MANAGEMENT.

It would be a waste of time to discuss further here the foundations of public hospitals in legislation and the evils wrought by "practical politics," in debasing institutions for the care of the sick. So long as there are, among legislators, those who say to one another for personal gain, "If you will vote for my measure I will vote for yours," and thus trade on the interests of the sick and suffering, so long will their cause suffer. Every such man never hears the sayings of the truth, or, hearing, "doeth them not." For us, we must, each in his own place, do the best we can for humanity's sake.

Our hospitals themselves are the outcome of the evolution of hospital construction, with gradual adaptation to their special purposes. Our fathers built their hospitals, both general and special, as well as they knew; they were bound, in the construction of all hospitals, until the middle of the century, by the lingering influences of the monastic period. Even the lessons of the great wars that came later have not served to prevent the building of some of the most recent and costly hospitals for general diseases in defiance of the best proven principles. It is fair to say that experienced medical counsel seems to have had little influence in these constructions.

Hospitals for the insane have followed the law of evolution. The development of the segregate plan of arranging buildings has had a steadier and more normal growth; there has been no wave of extreme change and a tendency to relapse, as in the case of the general hospitals. The block plan of the earlier ones for the insane, in this country, was greatly improved upon by the gradual change to the semi-detached pavilion plan, which was Kirkbride's great contribution to his time. The climax of its use was reached about 1860-'70. In the balancing of indications experience seemed till then to teach the greater and proper economy of rather closely connected buildings. The lessons of the Civil War were practically and wholesomely applied in the introduction of the detached plan. Its economy has been proven, by use, to legislators whose obligations are rightly to be reckoned with, and helpfully, when discharged as wisely and generously as they have been in many instances.

Our earlier hospitals for the insane were placed in or near large cities or towns. Where they have not yet been driven to remoter locations, they remain to encounter increasingly unfavorable restrictions of the freedom of the patients, or the offended public sentiment of even enlightened citizens. Such suburban situations could be held only at an incredible cost, in the actual economies of the existence of such institutions, as compared with an investment of values calculated to be productive of the greatest good. The opinion has been determined by the necessities of the case, that rural locations for large hospitals are the best, when large estates are proven so essential for outdoor life and occupation.

The present method of managing our hospitals is questioned. We may as well at once set down the dictum that the management of a hospital is a business that has to be learned like any other business, by both its executive officers and governing boards. The fundamental principle is that "those are best qualified to conduct a business who are best acquainted with its requirements." Let us turn for a few moments to some historical evidence on this point. The first that I shall cite has a double significance. When Florence Nightingale went to the Crimea in 1854, with her nurses, her superior success was due not altogether to her better knowledge of hospital requirements. She was free to co-ordinate the forces that produced the results. The medical staff of the English Army had enough of such knowledge to have had better hospitals than

they did, but tradition and official formalism tied the hands of the military surgeons by denying them adequate control of that which was truly within their province.

The American war began with like restrictions, but their reform was one of the crowning glories of our profession in the century's history, and set a model for the world. Who can read unconvinced in the annals of those events* the record of the "liberal course" of our Government and its great results? The medical historian also tells us how, in the first years of the war, the military superstition was broken down that only line officers could command men and perform the duties of executive officers; and how there was developed by medical men an efficient system of hospital service† that proved conclusively the error of the opinion which still prevails too much, that to be a physician somehow disqualifies a man for the business of conducting a hospital.

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The medical men of our armies, with no previous training in operations of such magnitude, and coming from the quiet practice of the arts of peace, or young men from the schools, achieved professional distinction; they held efficient control of military commands; they organized and administered extensive supply and transportation departments. There are enough of the men still living who were a part of those great events to bear testimony to their significance. It was the "liberal course" of the Government in the giving of adequate control and holding the officer to full responsibility that brought out the good results. But it would

*"Never before in the history of the world was so vast a system of hospitals brought into existence in so short a time. * * * They differed, too, from the hospitals of other nations, in being under the command of medical officers. Instead of placing at the head of establishments intended for the treatment of disease and wounds, officers of the line, who, whatever their other accomplishments, could not be expected to understand the requirements of medical science, and who, with the best intentions in the world, might seriously embarrass the action of the surgeon, as was really the case in the Crimean War, and has been since in the English hospitals, our Government with a wiser discretion, made the surgeon the commandant of the hospital, and thus, while holding him responsible for the results of its management, put it into his power to do much to make those results favorable. The medical staff can point with pride to the consequences of this liberal course. Never before in the history of the world has the mortality in military hospitals been so small, and never have such establishments so completely escaped from diseases generated within their walls."—*Circular No. 6, War Department, Surgeon-General's Office, p. 152.*

†"The surgeon in charge was entrusted with full and complete military command over the persons and property connected with the hospital. He was held to a corresponding responsibility. At small hospitals the surgeon in charge was his own executive officer, but at large establishments an active and intelligent medical man was detailed to aid him in his supervision. The special duties of the executive officer were those of adjutant to a commanding officer."—*Med. and Surg. History, War of the Rebellion, Part 3, Med. Vol.*

seem that great lessons must be slowly learned by the average mind. It is curious to see, throughout the country, the tardiness of the general hospitals in adopting a principle so plainly demonstrated. A few of these great hospitals have been placed under the administrative charge of medical men; and it is noteworthy that in some of the most successful instances the search for superintendents led to the choice of men who were already trained to their business in hospitals for the insane, which are in this regard far in advance of the general hospitals. These have yet to develop an adequate system by which the training of medical officers in junior positions will furnish a corps from which to appoint the future superintendents. The recent adoption of this principle in one of the leading municipal hospitals of this country is the first instance of the kind of which I have any kuowledge. In that instance, it is also noteworthy, an eligible candidate for assistant superintendent had earned his appointment by qualifications gained in the service of hospitals for the insane.

The history of the present prevailing method of administration in our special institutions for the insane is really, in itself, conclusive. Can it be possible that we must fight over again the contest of the century for the establishment of the medical government of our hospitals? It was the contest of their emancipation from hideous barbarism, and of the philanthropist and the humane physician, with "good attendants," against the wardens and their "keepers." Let the uninformed read Tuke's History of the Insane in the British Isles, and study the work of the Lunacy Commissions in Great Britain since 1828, to learn the part that was borne through years of discouragement by our profession. Conolly's leadership in England's great reform, we all know. His work on the "Treatment of the Insane," published in 1856, is a book into which he wrote, with the sincerity of his soul, the history of his life's labors accomplished in his thirty years at the great hospital at Hanwell. Who can read his pathetic "Conclusion" and not be moved by the picture he draws of badly organized asylums? He wrote of experiences in which "above all, the heart of the superior officer must be discomposed and saddened."

Every critic of the present system of hospital management, every doubting friend of the insane, should read Conolly's estimation of medical men in these relations as they were known to him by their works. "Considering the various education of men of

different professions and ranks, none would seem so likely to be fitted by their diversified studies, and by the practical application of them to the preservation of the health of men and women, to undertake the mental, physical, and moral government of lunatics and lunatic asylums, as medical men. Their various knowledge; their practiced observation of the effects of bodily diseases; their constant intimacy with the modifications of both physical and mental phenomena in all the accidents of life; and the very nature of their daily occupations, by which the best human feelings and sympathies are almost necessarily called into exercise, must generally be supposed to impart qualifications to them which are rarely possessed to the same extent by men in any of the other walks of life." He found these qualities illustrated in a high degree "among the medical superintendents of the last sixteen years (1840 to 1856), and particularly since the dawn of what may be termed the mental government of the insane."

Many of you have read his closing words, but they are so much to the present purpose for others to hear that they should be quoted: "My personal interest in such matters has ceased. The wildest resolutions of committees* can affect me no more. But knowing too well what rash experiments may be made by committees, * * * I can not refrain from recording my opinion, founded on long observation, that the proper treatment and the welfare and happiness of the insane is insecure under governing bodies constituted as those of asylums now generally are. Full security might, however, be given to the public, and every advantage of the insane surely preserved, if the control of asylums was always entrusted to intelligent superintending physicians, acting under the general inspection of a board or committee *qualified for such superintendence* * * * who would entertain no apprehension of evil from delegating such full authority to the physician as would leave him at liberty to carry out comprehensive plans, according to principles admitted and approved by them, and at the same time possessed of authority empowering him to enforce conformity to his measures among all other officers. Thus, and thus only, I believe, might be established and maintained a consistent plan of asylum government, advantageous and humane in relation to the patients, encouraging to all the officers of such establishments, and just to the community at large."

* Governing boards.

In our own country there are those among us who remember the lingering examples of institutions with divided authority, and the consequent heart-breaking difficulties; and they know the peacefulness and efficiency that came from the changes to medical control brought about by the logic of experience. Can we not name the names of good and able men who were defeated in the noblest aims in conflicts with non-professional dictators? It is noteworthy that the reversals, in some modern instances, to the old system so stamped with condemnation have been made by men new to hospital government, who, in their discontent with individuals, and defiant of recorded experience, rush to the illogical extreme of changing at the same time both the *personnel* and the *system* of the institution in their keeping. That experiments in divided authority may appear to work well for a time proves nothing; it is a cause for wonder that the constantly occurring evidence to the contrary can be so ignored. We have no assurance that the division of control between a medical director and a warden will lead to more productive scientific work in a hospital. There must be a line of union somewhere between the closely related medical and executive operations of a great hospital. Such an institution is a mechanism which obeys the law that efficiency goes with reduction of friction. Harmony is the perfected result of an efficient administration; the logical basis of harmony is unity of control in all business organizations. If the facts of experience give the right to any one to speak as having authority, it should be declared as beyond question that a properly organized system, under unified control, carries itself along with a degree of ease that no other method can obtain. Instead of spending his time and strength and fretting his soul with fussy details to avoid friction with a coordinate authority under the same roof, or leaving things undone that ought to be done, a chief executive with experience gained by time and training, and duly empowered, will make the various elements of his household fit together in a harmonious whole.

It is simply a matter of organization. Let the lesson of the great military hospitals be followed. In a large asylum a "liberal course" on the part of its governors would soon prove that no more productive investment of public funds could be made than in strengthening the executive head of the institution. If more professional work is wanted of him and he needs more time for it, let him divide both the executive and medical duties with an execu-

tive officer—an "adjutant"—as it was done in the general hospitals of the Civil War. Members of governing boards should put the kind of common sense into their hospital direction that they do into the business of their corporations, and employ trained men, and train others to competency for the work that they ought to do.

The truth of it is, if we search for a general principle, that everything in a hospital is medical, and is administered for a medical purpose. There is one end to which all things contribute. In the first place a hospital household is an organized social unit; as a family of men and women, young and middle-aged, it should be under a controlling head, *in loco parentis*. The hospital is the home for those who live in it, and their lives, liberties, and happiness are largely in the hands of the controlling authority, for order must reign. It is a household organized to do business where the people live. The moral, ethical, and business atmosphere of the place must be calm and wholesome in its influence upon the sick and insane; this is healing alike with the aseptic conditions of a surgical ward. It is bad construction not to have the material supports of an edifice well "bonded" throughout; there should be no lines of cleavage ready formed, where it tends to split apart when the inevitable strain shall come. It is equally repugnant to social as well as mechanical law, that a domestic organism should be constructed without the common bond of unified control. In a large hospital for the insane, even the kitchen, laundry, shops, and farm are places for the treatment of patients by occupation. The conduct of these essential parts of a great institution should be inspired by a controlling medical spirit.

A military hospital established with a comparative permanence is the easiest to manage; there are only men in it, and the daily and nightly rounds of duties are done by soldiers, who obey orders. There is no home, and little sentiment is essential in such a hospital. In a general hospital the domestic sentiments enter with the home life of the people when "off duty;" some must be protected and others controlled. The management is more difficult by the multiplication of details arising from a rapid movement of the hospital population, and the adjustment of the complex relations with a large visiting staff, with whom, although one way is often as good as another, each wants his own. The patients however, being mentally well, are expected to voluntarily obey the rules. Still a medical government best co-ordinates all these ele-

ments. In hospitals like ours the executive demands are much less exacting, by as much as the life and business are more regular; a well-ordered system may leave the executive head large freedom for giving time to the supervision of the "mental government," as the purpose of the whole régime. The patients here are most dependent upon the parental element in the social order; the medical superintendent represents the authority that applies the required restraint, and the more paternal this can be the better. Conolly's idea of "mental government" was right. The moral and disciplinary effects of a well-conducted institution have their most effective medical uses. I once heard the lamented Goldsmith quote a saying of his neighbor at Danvers—the poet Whittier—"an institution is the shadow of a man." This could never be more truly said than of Whittier's neighboring hospital, where he must have observed that it is the spreading of the influence of its head throughout such a household that makes it one with him. That was what Conolly saw in the new order of "medical superintendents," in "the dawn of the mental government of the insane." This makes the title a term of honor for all time. If any think it can not be borne by a medical man without loss of dignity, let him read the lives of Conolly and of many other conscientious and able men who, since his time, have worked out for themselves the same conclusions. There are generally reasons for things. And when principles, struck out by such men, have made their way for half a century until they prevail, they are not to be treated lightly. Conolly's "mental government" meant medical government. A "medical superintendent" may combine the several dignities of "medical officer," a "medical inspector," "medical examiner," and other allied professional and business offices. I never heard it denied to any specialist in medicine that he might manage, without loss of professional caste, his own *res angustæ domi*, or a private hospital for his personal profit.

A medical officer such as I have described, trained and promoted through the various grades of junior positions, most certainly acquires the assured capacity, which alone is to be relied upon for the best results. Such a medical executive, thus trained by professional and executive experience peculiar to a hospital, becomes the one who can most effectively and easily use this hospital as a perfected instrument which he can fully grasp and wield. It is the combining and co-ordinating faculty that must be had, and this

is as much a part of the essential foundation as the material hospital is requisite as a shelter before any patient can be well treated in it.

Let us suppose that a medical man has acquired these abilities, favored by having the requisite time and experience to make his hospital successful. Is it essential that he should have kept pace personally in his acquirements with the various special departments of medical science that might be brought into the work of his hospital? The president of a university may be a learned orientalist, an adept in biological research, or an expert in the new electrical science. Who demands that the head of a faculty of arts and sciences shall be a master of all these? In the medical department alone general medicine, as an applied science, now demands the expert contributions of the pathologist, chemist, neurologist, and bacteriologist for completeness of work in any hospital. All these and more must be included in the scope of the trained executive of a hospital for the insane, where an experienced alienist finds his largest place. Which of these specialists can best compass the work of all the rest? The trained executive is the foundation of the whole matter, and the day is to come when, as a medical specialist, he will rank with the honor due his usefulness. If this seems a modest aim for a physician, let it be remembered that there are places in professional as in business and social life, in which the men who are demanded to make the best contributions to the common weal are those who have it in them to be the cause of good in others. But the man who is well grounded in general medicine is the better physician when he has "business sense," which means—when he has a logical mind. With this, and training and experience being given, the requirements are furnished for best organizing a medical business. Here we get the true view of our present point of departure for advancement; there are many, and there might be more, medical executives of our hospitals who have risen to their places of trust, as men do in other business, because they have the power of "combination." Knowing the elements of their medical work they are the very ones to organize it. Like the college president, who, by a combination of skilled teachers, becomes the cause of learning beyond his own, so the skilled medical executive is the man to organize the means and inspire a medical staff with the zeal that begets competency and

good work.* Therefore it is, now that our time has developed so many medical superintendents who are skilled executives, that with their opportunity comes the obligation to enter upon the newly opened fields for the organized investigation of our problems, which are of so much concern to human life and happiness.

The opportunity and obligation of governing boards come also here. But it requires a very intelligent and very practical business sense—that is somewhat rare in the controlling authorities of our hospitals—to understand that some of the most productive scientific work is not to be tested by an immediate demonstration of the question: "What's the good of it?" It is the most practical mind that best appreciates the true relation of necessary causes to effects, when these are remote, in matters on the boundaries of knowledge for the most acute professionally trained minds. It is often the wisest superintendent who sees the futility of trying to do what cannot be done. It too often takes long years to educate people, legislators, governors, and trustees to the consenting stage; and when the medical superintendent knows that his executive life is likely to be short, the possibility of professional attainment offers little to inspire his zeal, and it is thus that he grows to be a man who must be content with making ends meet between appropriations and *per capita* cost, instead of making these elements serve the larger purpose.

In the more enlightened States it is one of the most inspiring signs of the times that in the last few years so many of our hospitals, and the younger men in them, are being stirred by the doing of new things in the advancement of clinical work. It is here that the governing boards ought to see the worth of a "liberal course," and should provide the means, which are relatively so moderate, and give the stability of support that is required.

A wise observer of men and things recently said to me: "Man progresses on diagonal lines; in trying to strike a right line he pushes off on either side. It is like the skater; he gets on, but in his efforts to reach the true mean he goes to the right and left.

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*Dr Wise, commending his practice of holding a daily conference with his assistant physicians, forcibly says, for all of us: "It is not uncommon for a superintendent to find that an assistant has outstripped him in scientific attainments, and that Gamaliel can properly sit at the feet of Paul. This should not be a matter for regret."—"Medical work in Hospital Wards," Amer. Journ. Insanity, July, 1895. We must all agree with his meaning, that it should not be otherwise in a well-ordered hospital which has growth in it.

The reformer is always pushing off *from* something; the idealist continually strives to go *to* something." This suggests to me the thought that when a good man, in his discontent with things as they are, tries to change them, he is accorded the rôle of a reformer. He is a safe man to follow when his reforming is well informed. Conolly was a safe man for a leader, because he knew his cause from the inside. When a bad man assumes the rôle of a reformer it is likely to be for base ends; he may profit by the laxity of old conditions or new looseness. He is a reactionist. But the reformer who only knows his cause from the outside is in danger of doing harm in his good intent. Like the skater in unfamiliar places he may "push off" too far. Such "reformers" do more damage than the reactionists; indeed they are the more dangerous; by as much as they are known to know many things people are apt to think they know all things. It is the commonest thing in life for many people, who are bound to have some change, and speedily, to hurt the cause they wish to serve. In our great work it is the safest and surest to prove all things and hold fast that which is good. The mother of reform is discontent; but among her many children, good and bad, the best of all is improvement. Let us foster a wholesome discontent and have advancement by all means, but let it be true reform, if need be, and not such revolution as means reversal to things obsolete. One of the morals to be drawn from this is, that when reforming is needed in our work it is for us to do it.

In recent discussions of the proper place and function of the alienist as a hospital physician, there has been a subtle intimation that his desire to establish a medical government, and to have "control," is somehow to his discredit. The implication seems to be that he is "a jack at all trades and good at none;" or he is

> "At once a cook and a captain bold,
> And the mate of the Nancy brig."

The case of the *soi disant* captain in the ballad was a peculiar one, but he survived his perils, and, though he had but one story to tell, let us hope our fate will not be less fortunate.

II. THE RELATION OF PSYCHIATRY TO GENERAL MEDICINE.

The position of the alienist in his relation to general medicine has a most interesting history. He was in the beginning of the modern science of mental medicine, a hundred years ago, always a general physician; it is really true that he has been so ever since.

Surgery, long set apart as a somewhat special department of medical science, has a comparatively limited field. An eminent surgical writer* says that "the charm of surgery is because it is visible, and tangible, and demonstrable;" its brilliant modern triumphs make it most attractive. With its "external pathology" it is "still to some degree uncertain, but not nearly as much as medicine." "I think," he says, "there is no doubt that medicine requires a higher grade of intellect and more judgment than the practice of surgery." Most of the modern specialties, so-called, are subdivisions, and sometimes refinements, of surgery in their methods of examination and treatment. Psychiatry, however, so far as it is a specialty, is closely allied to general medicine; it finds its etiology in all bodily diseases. There has been a mistaken tendency on the part of ourselves and others to include psychiatry wholly in the new science of neurology. The alienist, it is true, has to do directly with mental symptoms, disorders of brain function, and, therefore, of the nervous system, and this goes to all parts of the body. But it is the same for the general physician; he deals commonly with mental symptoms in all forms of febrile delirium, for example, and is more or less of a practical psychologist in the whole range of his art. The alienist, as a psychologist, is a general physician who is a student of neurology, and uses its anatomy and physiology; but he does a great deal more, for he must include all the bodily organs. He must study all the functions of nutrition and excretion. He is being aided by the more promising contributions from organic chemistry; and bacteriology, in the wonderful advancement it is bringing to the whole science of medicine, is explaining the analogy between the toxic influences produced without our bodies and those within them. Not only do bacterial products poison us, but those of our own vital processes that are toxic in conditions of disordered function and in disease are also the more or less direct causes of mental symptoms. Thus it is that psychiatry is shown, more than ever before, to be dependent upon general medicine. The best definition of insanity is that it is a symptom of bodily disease; in its initial, acute, and curable forms it is a condition due to nutritional changes until consequent damage accrues to the nervous system and the mental organ itself. It is later that we reach the pathology of the neurologist,

* Cheever, "Lectures on Surgery," p. 2.

for in the order of the symptomatology of nervous lesions the general physician and the alienist come first, when the causes are not traumatic, or other forms of surgical disease.

Neurology, in the practice of the modern specialist, had at first a comparatively limited field. Among the newest of the special branches of medicine, its achievements have been brilliant. One of the earliest of these which, in this country, had so great an influence in establishing neurology on its present basis as a clinical science, was the remarkable study in the wards of the military hospital of the effects of nerve injuries caused by gunshot wounds observed in soldiers of our Civil War.*

The methods of neurology have been distinctly anatomical, and the force of its scientific research has been largely directed to the localization of the lesions of the nervous system by carefully comparing observed symptoms with pathological findings. These methods have yielded such exactness of results in diagnosis, that like precision has been demanded in all lines of clinical inquiry relating to the nervous system and assumed to be neurological. Out of this there grew the disposition to reproach the alienist as if he held only a limited place in neurology, for not having demonstrated to an equal degree pathological findings to account for all morbid mental phenomena. With the reinforcement of the early promises of the new experimental psychology, which first addressed itself to the more mechanical lines of inquiry, it became still more the fashion, a few years ago, to regard the alienist as a specialist in neurology and nothing more. Psychiatry has been charged with being slow in its progress, as having no coherent principles, resting upon an indeterminate basis in anatomy, physiology, or pathology, and, therefore, as being unscientific in its classification and therapeutics. But Krafft-Ebing, in noting this fact, claims the establishment of "Psychiatry as a Clincial Science," and says that the results offered by pathological anatomy are for the most part negative, and a few positive ones not surely indicative of their genesis, and worthless for the explanation of the disturbance of function known to have existed. Then psychiatry, he says, seems almost exclusively dependent on itself, and is limited to the direct observation of psycho-pathological phenomena, and from the empirical valuation of these is obliged to draw conclusions as to the

* Mitchell, Morehouse, and Keen, 1864; and S. Weir Mitchell, "Injuries of Nerves and their Consequences," 1872.

kind and degree of the functional disturbance of the psychical organ. These psychopathic phenomena are, however, no mathematical quantities, no physical phenomena, nor even chemical secretions, but are phenomena of a peculiar kind, being the so-called feelings, ideas, and will-impulses. The courses of the psychoses are discovered through observation as in any other disease. Psychiatry, now raised to the value of a clinical science, must be studied by its own methods. He says, "it is more than a specialty, and a necessary complement of medical study, inasmuch as man is not simply an eating, breathing, and feeling machine, but a spiritual personality, whose psychical functions are intimately bound up with his somatic, morbid processes."*

An American philosopher† shows that "each of the real and concrete forms of existence which are known to man, boundless as their number and variety may appear, falls nevertheless under one or another of three great types of real being, viz., the machine, the organism, and the person." The surgical specialists and the neurologists have been mainly studying the human being as a self-making and self-working natural machine. These specialists have called to their aid anatomy, physiology, and pathology in their examinations of the organism which, when out of order, they try to mend. The general physician must go farther in his dealings with the organism while using the same aids; he finds that in treating the disorders of the personal man, he has constantly to reckon with him as also a rational being, whose organic machine is his instrument; and so far every such physician is a practical psychologist. But the alienist as a general physician is especially concerned, in his wider field, with the whole man, for psychiatry deals with the mind of the man and must seek for causes of its disorders in the whole man.

I have said that the methods and field of neurology in medicine have been distinctly anatomical. It is another of the interesting signs of progress in our whole science that the neurologists are finding the need of psychology to explain their problems, and are being led thereby into a better comprehension of psychiatry. In any assemblage of "neurological" papers it is now noteworthy that while the major part of their titles have an anatomical or surgical bearing, a fair proportion will be upon mental subjects.

* Wiener Klinische Wochenschrift, October 24, 1889.

† Abbot, "The Way Out of Agnosticism," p. 54.

While many of the writers are alienists, yet there have been neurologists who from the beginnings of their science, have recognized the presence of the psychical element, though much as the general physician has done. The importance of this element as modifying and even causing nervous symptoms is now being more correctly estimated. No more significant indication can be noted as an example than the clearer recognition, within a very few years, of the true nature of hysteria and its alliance with neurasthenia, through the remarkable elucidations of Charcot and his school, and by Loewenfeld, Pierre Janet, and others. Great difficulties are being solved by the growing knowledge of the fact that underlying all nervous and mental phenomena there is a range of subtle changes in the conditions of the organism that are common ground for the alienist and neurologist. The bond between them may prove to be the still newer science of physiological psychology, wherein may be found a rational basis for an understanding of the relatively intangible mental observations and the beginnings of the grosser changes whose study has given a marked character to the work of the neurologists. The importance of this is shown in the broadening of the view of neurasthenia as being, in certain forms, either a disease by itself, a condition underlying many other nervous diseases, or the true characterization of a chronic condition, whether acquired or hereditary.

We read in the writings of eminent neurologists, discussions of such subjects as "Association Neuroses; Neurasthenia and Allied Forms of Neuromimesis," by Prince;* and "Remarks on the Psychical Treatment of Neurasthenia," by Putnam.† The work of Bouchard and others in pathological chemistry, and the revelations of bacteriology concerning the effects of infectious and toxic influences, have made contributions to general medicine that have been applied by the French alienists to the study of insanity. Our American neurologist, Mills, has written on "The Relation of Mental Disorders to Infectious Disease,"‡ and Putnam,§ on "The Relation of Infectious Diseases to Diseases of the Nervous System."

When Van Deusen, in 1868, published his ideas of neurasthenia in advance of Beard, he had a much broader and truer conception

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*Jour. of Nerv. and Ment. Diseases. May, 1891.
†Bost. Med. and Surg. Jour. May, 1895.
‡Am. Jour. Med. Sci. 1894.
§Am. Jour. Med. Sci. 1895.

of the conditions that underlie mental as well as nervous diseases. It is the alienists who have developed this conception, and who have brought out the present understanding of the relation of chemical and toxic processes to mental diseases. In a recent address on the "Causation of Nervous Disease"* by Starr are summed up the results of our present knowledge of the changes in the chemical and physical condition of the neuron, showing that the essential lesion in functional and organic diseases may be produced by overwork, by imperfect nutrition, or by active poisoning, from active toxic agents produced within the body, or from those of an organic or inorganic type received from without. Thus has general medicine contributed both to neurology and psychiatry, through the principles discovered by bacteriology, an explanation of clinical phenomena long recognized by alienists who first anticipated the true conception of mental disorders as finding their most prolific cause in conditions of nervous fatigue and exhaustion.

These are valuable essays in the domain of psycho-pathology or in close relation to it; but psychiatry has much to give to, as well as to take from, neurological medicine. It should be kept in mind that if psychiatry is neurology it embraces a far wider range of disordered conditions from diseases of the body than are noted in the manuals of nervous diseases, although these, latterly, enumerate and treat upon, though meagerly, the diseases of the mind. But neurology, although still notably deficient in therapeutics, demands of psychiatry a greater ratio of "recoveries" from insanity than has been shown, apparently forgetful that a large proportion of the patients who have other diseases never get quite well at the best, and still may return to their homes and business, as the uncured insane can not do.

The question of the large contributions that may be made by neurological medicine to psychiatry is one that will bear examination. The advances in histology are so marvelous and rapid that the student of five years ago must now recast his knowledge and conceptions of the physiology and pathology of the nervous system. The alienist has his aid direct from this new knowledge, but welcomes eagerly the "deductions" of all careful observers. But if such deductions from anatomical neurology sometimes take the form of authoritative and instructive dicta, concerning, for ex-

* Western Reserve Med. Jour., May, 1895.

ample, "the effects due to an exaggeration of the unknown ganglionic or other alterations, without demonstrable lesion," we may be pardoned if we do not take for guides our most agreeable counselors and friends.

In the relation of psychiatry to other departments of medicine the alienist has had to encounter the criticism that he has not been productive of scientific work. We have seen that in its very nature it has not, even yet, the objective character in its pathology that makes it demonstrable by mechanical methods. In the work of the alienist the century has been an age of construction—of laying foundations and building shelters, and thus largely of providing for the more material care of the insane. The problems of this kind to be solved have been difficult and often overwhelming. That the work has been done by medical men better than it could have been done by anybody else is beyond question. If, in their annual reports, the record of their labors is read in an appreciative spirit, one could not fail to be moved to sympathy by the pathetic history. As an example of this I had recently the privilege of hearing an account, written by Dr. Babcock of the South Carolina Asylum, of the efforts made in the last forty years to provide for the colored insane. It was the work of men among whose names are those of Stribling of Virginia, Green of Georgia, Tyler of South Carolina, and Compton of Mississippi. The mention of them awakens memories of a generation at once honored and honoring that has now passed away. The humane purpose that was sustained through years of discouragement, and the arguments presented in appeals to legislatures, too often futile, betray a degree of foresight, wisdom, and devotion that commands respect. These were scientific labors in the worthiest of the professional and social obligations of enlightened men. In these and kindred efforts the experienced alienists have become conservative as well as painstaking; no brilliant discovery is possible for them, to inspire their zeal with an exhilarating freshness, and they have long been learning to refrain from the voluminous publication of conjectures and deductions concerning the unknown and undemonstrable. There is something to be said also of the perennial proneness of us all to regard everything foreign "pro magnifico." When we are asked why the results of the new science of physiological psychology are not being applied to the elucidation of psychiatry in this country,

the following abstract of recent comments, by a German writer,* is a sufficient answer:—

Very few alienists in any country have gone carefully into the question of experimental psychology or have made experiments themselves. Buccola, in Italy, more than a decade ago, attempted to apply the psychological measuring of reaction time to pathological cases; but, owing to his early death, this and the work of a few followers soon stopped. Later some Russian psychiatrists, partly influenced by Wundt, attempted the experimental investigation of pathological mental conditions; and quite recently, in America, the attention of some of the younger psychiatrists is awakened to the new psychological methods. But up to the present day, Kraepelin is the only German alienist who has attempted to study the particulars of psychological experiments, by working himself in a laboratory. It is very significant that, in this unique instance, Kraepelin, whose training was with Wundt, has felt compelled to spend some years of preparation in devising special psychological methods before any could be made applicable to the peculiar psychical processes of the insane.

That there is something to come out of this pathological mystery is not to be doubted. Kraepelin, with his painstaking caution, is bringing out promising indications for the better estimation of mental symptoms by their analysis upon a psychological basis, through the application of certain methods entirely new with him. His fine elucidations of the "exhaustion psychoses" represent, however, the results of a kind of clinical study to which contemporary workers in other countries have addressed themselves; and there have been those who, within the last decade, have initiated laboratory work upon like problems in different ways. To demand results at this stage of progress is calling for the fruit of the tree before it is grown. Neither are we without the promise of scientific advancement in the direction of "pathological findings," in the work of members of our association of alienists. The difficult character of our problems forbids any trivial treatment of the labors bestowed upon them, and certainly exuberance of critical judgment is untimely now that the trend of inquiry has changed so much the data of general medicine, in which the alienists have always found their rightful field. In common fairness the ques-

* Kraepelin: Der psychologische Versuch in der Psychiatrie. Psychologische Arbeiten. Leipzig, 1895.

tion should first be answered: From what sources, other than the alienists and their hospitals, have come any real contributions to the study of mental disorders in relation to their physical causes?

It should not fail to be mentioned here that there is a most encouraging indication in the work of our hospitals, which allies it with the methods of the general hospitals. Ten years ago there were only two organized schools, then newly established, for the training of nurses in hospitals for the insane. In 1892 there were twenty-four such schools in operation in this country. This year there are thirty-eight of these schools in American hospitals, that have yielded a total of 896 nurses, including men and women, qualified by being instructed in their special work. In a number of other hospitals the establishment of the new system in the nursing service is already begun.

Considering the opposition to this movement in certain quarters, the difficulties in others, and the remarkable failure in some instances to recognize the absolute need of training and experience in such general nursing as may be required in asylums as the first principle of success, it leaves little room for complaint that advancement is not being made in this important particular.

III. THE PROMOTION OF PROGRESS IN THE HOSPITAL TREATMENT OF INSANITY.

This discussion of the advancement of psychiatry has been limited, so far, to a study of our present "foundations." In pursuance of my argument I have endeavored only to characterize, in general terms, the way in which we are really trying to do our work,—the plan upon which we must expect to build. In the first place we have our hospitals as they are; let us do the best we can with them. It is a maxim in the conduct of hospitals that a bad hospital can be made a good one by good keeping. To men who have learned the business of keeping a hospital, and practiced the art of conducting an institution that should be well organized if business success is to be hoped for, there is no need of assuming to give instruction. The problems relating to hospital economies, the material comfort of the patients, and the curative effects of occupation, etc., are all familiar to you. I may be allowed, however, to say a few words in regard to an ideal hospital organization with respect to its clinical and scientific work. If one were an autocrat,

and such a thing were conceivable as being the controlling adviser of a hospital corporation, board of governors, and all concerned, it is easy to say what one should do. My ideal hospital should have the best executive and medical staff that the purse could support, of which I held the strings. The principle should be that no part of the investment in a business is so profitable as that which procures educated and skilful direction. The chief executive should be a man trained to his business and of proven capacity for that particular business, so that with proper assistance his purely executive duties should be to him simply incidental to the use of the hospital as an instrument applied to its intended purpose. The business office of the hospital should be in charge of a competent man, who, as a clerk and cashier of the hospital, with proper assistance in the bookkeeping, would act as "adjutant" to the superintendent; as such he would prepare and co-ordinate all the executive office details, but have no executive authority himself. The present office of steward should become that of a purveyor, who, as "commissary" and "quartermaster," would be the buyer of supplies as for a commercial house; he would have charge of these and the oversight of the farm, etc., but he should have no handling of money or keeping of the financial accounts, which belong to the treasurer's office. Then the maintaining of all proper checks upon the purely business operations would be done by the "adjutant," for the superintendent, who could keep himself duly informed without the routine labor of applying the checks himself, as he may do, however, at will. The superintendent should be well educated in general medicine, so that the medical government of the hospital, and the "mental government" of all within it, should have a basis of the broadest understanding.

The clinical assistants should have perfected their education by hospital training or successful practice in general medicine; and they should be chosen by the superintendent for nomination to the governing board, and he should be responsible for their efficiency. The senior officer should systematically share in the "medical government" of the hospital in all particulars for the sake of perfecting his training. There should be a woman for an assistant physician in a large hospital, or a consultant in gynecology, and consultants in other specialties, to be called when needful, as the physician calls them in general practice. There should be an accomplished

resident neurologist on the staff, or a physician especially educated in neurology—not for a chief of staff, because his views would need the broadening and adjusting that would mutually come by contact with the physicians of the staff experienced in general medicine, and by the discussion of clinical problems in the regular meetings of the hospital medical society. Thus I should expect all of the medical staff to become, by and by, practical neurologists as well as psychiatrists. Later, in the natural evolution of things, there might be a neurologist for chief executive, when he had learned also the incidental business of management; he would have become, by that time, also a general physician, as an indispensable requisite, and as a practical result of medical work so conducted. The newly appointed neurologist should have some clinical duties, even though limited, from the first, if in no other way, at least by taking the places of the regular clinical assistants in a system of giving "a day off" to each every other week. Such an organization provides for an effective division of labor that relieves the clinical assistants from the routine of keeping case records, etc., which may be better done by those whose time is less valuable. Thus more attention can be given by them to the patients themselves, and to the important necessity of keeping informed in the literature of the subject.

The laboratory should be in charge of the neurological assistant, because he is supposed to be well informed in nervous pathology. But the pathological work should be conducted on the principle that the pathology of insanity begins before the insanity does, and that post-mortem pathology includes but a small, though essential, part of the requirements. Therefore, the laboratory should be a place for the study of physiological psychology. This would cover the study of the initial conditions which lead to mental disorder, and promote the possible determination of the nature and causes of departures from normal mental function. Moreover in the dependence of their changes upon general physiological processes, and in order to take into account all the elements of vital activity involved, it would be supremely necessary to study both physiological and pathological chemistry in their direct and indirect relations to mental changes. This includes the effects of fatigue and its relation to exhaustion and auto-intoxication. For these reasons it would be desirable that the director of the laboratory should have an assistant especially accomplished in chemistry. There

should be, as in general hospitals, a service of medical internes, or clinical clerks, as junior assistants, who should write the records of cases, etc.; their business being the study of medicine, it would bring in the principle that, in their instruction, he who teaches learns. I would make all the medical staff teachers in some way; the training of nurses helps to do that. Then there should be a school, the teaching in which can be well done and still become so far incidental to the general duties as to add little to the labors of the staff. Such a school can be so conducted as to affect little the cost of the nursing service; in fact the law of compensation works in all these matters. It is a matter of the organization of a business; whatever is good to do, is good all round—every good thing helps every other good thing, and the sum total is the greatest good. The success of such a business is a medical success, and the accomplishment of the results attainable in any large hospital by a well-sustained medical government is a success worthy, in the highest degree, of a physician.

My thesis is that the advancement of psychiatry in America must start from sound foundations; it is the chief business of our lives, and its conditions may be summed up in the following propositions:

1. Our hospitals should be conducted under medical government, as they are instituted for a medical business. They should be conducted by their governing authorities in such a way as to promote the professional efficiency of the medical executive staff; this implies the choice of such officers solely for their fitness, and that fitness is enhanced by experience, which goes with the stability of their work. It implies also a liberal equipment of the literature and appliances which are the well-recognized essentials of scientific professional work everywhere. The manner of life of these officers should put them on an equal plane as to compensation, with successful men of like capacity and attainments engaged in other branches of medicine.

2. The tendency in all departments of medicine and surgery has been toward limitation in specialties; this should be counteracted in our work in all possible ways that promote the broadening of the fitness of medical officers by affording better conditions for their education in general medicine while in the service of the institution, and by encouraging special neurological and psychological studies. Thus there should be a close union with all that pertains to neurology, and then advancement should be sought

along the lines of a common alliance with general medicine under the law which Herbert Spencer calls the tendency to integration of all the present specialties in medical science. It is this tendency that, notably at the present time, is being strongly reinforced by the great developments in biology.

3. While it should be our aim to be general physicians in order that we may draw our aid from the whole domain of our science in our somewhat special work, we should draw also upon the newest knowledge of psychology. Thus our special mission becomes the study of the highest and the most difficult problems of human life in the preservation and restoration of mental health, and the sanity of that life.

Members of the Association: In this, the aim of your high calling, if you be but faithful you may rest upon the facts of your peculiar experiences, and as you lift your cause from stage to stage neither adversity nor any misapprehension of your good purposes, nor any evil thing, can rob the world or you of the blessings that in the end will flow from the devoted work of those who love their fellow men.

MEDICAL WORK IN WARDS OF HOSPITALS FOR THE INSANE.

BY P. M. WISE, M. D.,

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When I was invited to prepare a paper upon the subject of medical work in hospital and asylum wards it occurred to me that this included all the medical work of hospitals for the insane. I can not expect you to listen patiently to a review of the usual requirements of a medical department of an asylum, and I will, therefore, present to you some suggestion of methods that tend to give more distinctly the hospital character to our wards, and thus remove them farther from their character as detention places. This alone is a great subject, and I do not expect to exhaust it, but I hope it will form a basis for a free discussion to follow.

There are three important elements that enter into the treatment of an insane person in a hospital for the insane: (1) The medical officer, whose relations are closer to his patient than that of the family physician; (2) the nurse, and (3) the ward, with its appliances; and this should include the whole environment of the patient. These are not given in the order of their importance, for the nurse rationally stands at the head, although her efficiency depends largely upon her training and direction, and this depends upon the physician. This classification of remedial agencies might be infinitely subdivided, but for our present purposes it is unnecessary, and would be superfluous.

There are also three important periods in the hospital history of every new case: (1) The admission and examination; (2) the treatment during the acute stages, and (3) the termination, either by recovery, death, or chronicity. This applies not only to cases of generalized insanity, but to all new admissions, whether they are in acute stage or not, until their condition—mental and bodily—becomes thoroughly determined and recorded.

The examination and treatment of the patient in nearly all public hospitals for the insane devolves upon an assistant physician, the medical superintendent acting in the capacity of a counselor, either in all the cases received, or in those of unusual interest or

severity of disease, or with complications. Hence it is necessary that the assistant physician should be capable, and should be qualified by education and training for this special work; that he should be governed by well-defined methods of procedure, for which the medical chief is responsible, and that he should not be burdened with non-medical duties. Allowing that insane hospital physicians, as a class, are superior men, and those who gain advancement are selected men, it must be admitted, with regret, that sometimes the temptation of a humdrum daily routine is not resisted, and they become medical automatons in the matter of their inspection and treatment of patients and in their ward duties. Occasionally a brilliant, active, and sanguine assistant bent on original research, will flame across the medical firmament of a hospital, but too frequently like a comet without an orbit. But in other instances, with a definite goal, and with loyalty to well-matured and precise methods, the assistant develops into the scientist, and his department becomes not only a hospital in name but in fact.

The medical chief is largely responsible for the development and progress of his assistants. Upon his discernment and sagacity rests very largely the character of his staff, not only in original selection, but in their development. As a rule, the assistant physician enters upon his special work before he reaches the "climax of initial fecundity," in other words, during the period of psychical evolution, and the impressions and tendencies he absorbs at that time are likely to become elements of his organization as it relates to his chosen work.

I believe that medical superintendents do not confer with their assistants regarding their medical work as frequently as they should. At the St. Lawrence State Hospital the medical superintendent meets his physicians daily in conference after their morning work, between the hours of 12 and 1, noon, and I am inclined to believe this daily experience meeting of an hour is of infinite value. At any rate it might be made so. It is not uncommon for a superintendent to find that an assistant has outstripped him in scientific attainments, and that Gamaliel can properly sit at the feet of Paul. This should not be a matter for regret.

The training of young medical men by an interne service before charging them with independent responsibility is of great value, and should be generally adopted. In New York each State hospital is allowed two internes, but this number is not sufficient to

supply the requirements. There should be as many internes as there are assistant physicians. Between the nurse and the medical officer the interne can perfect the link of clinical evidence that requires time in greater proportion than special skill.

There is always a paucity of physicians in our public hospitals. In wards for recent cases, there should not exceed one hundred patients for each physician, and if the ward classification is quite strictly confined to recent cases, the number should not exceed fifty. Fortunately, in the larger hospitals, the medical force is large enough to provide for an exigence in the service for acute cases.

The assistant physician should be relieved as far as possible from clerical work, and duties that are not of a medical nature. Ward government and hygiene are properly a medical duty, and can not safely be separated from the medical service, but case writing and recording should be delegated to clerks, the physicians dictating to a stenographer. The conventional case-book has no place in the true medical work of the hospital, and is maintained, chiefly, because it is a requirement of law. It becomes a repository of facts for statistical purposes and an epitome of incidents in the history of the patient. It is useful as a reference book, and can be maintained as such, but as a medical record it is insufficient. The clinical record should contain the medical history of the patient, and this should be chiefly the work of nurses, as I will shortly explain.

I believe it is unwise to separate the pathological and clinical work in our hospitals; and consequently the practice of maintaining a special pathologist as an independent functionary is to be deprecated. The physician whose relations, clinically, to the case were the closer, should be the interpreter of the morbid appearance. He can not be so unless he holds the position of master in the manipulation of the morbid tissue. There can be no objection to giving him the assistance of expert manipulators thoroughly acquainted with technique, but their relation to the case should be mechanical. They should hold the position of assistant to the physician, instead of the physician being occasionally favored by the pathologist with a glimpse into his sacred precincts. When I find my colleagues resorting to the laboratory in their recreational hours I feel that their spirit of research requires no assistance.

The nurse is the more important element in the treatment of the patient, not only because she is the immediate agent to carry into

effect the prescribed treatment, but as the direct and constant witness upon whom the physician depends for the bulk of his information. Consequently, she should be efficiently trained, as much for the observation, detection, and the proper recording of all symptoms, as for the management of the patient. I use the feminine pronoun purposely, for I believe that the time is not far distant when women will displace men in the care of the large proportion of insane men who are not violent or erotic. We have had nearly a year's experience with women as the sole attendants in two of our more particular wards, and their success is not only marked, but they are eminently pleased with their work. A previous experience with a mixed service—part men and part women—was not a success and was abandoned. We are contemplating the organization of a new building with male patients with women nurses alone.

The training school is such a universal adjunct of an insane hospital that a reference to it is sufficient. From such evidence as I have, I believe our training schools in insane hospitals lose in comparison with the general hospital training schools, in failing to give a thorough bedside clinical instruction; hence,there should be hospital wards quite similar in their appliances and conditions to a general hospital ward, in which there should be required a term of service of all students of the training course, under constant and effective instruction. Lectures and recitations are very well, but practical bedside instruction is of greater importance. Nurses that have come to us from other schools, we have found quite incapable in clinical observation and recording, without further instruction.

Like physicians, there is usually too small a proportion of nurses in public hospitals, for economic reasons, but with increased enlightenment of legislators this fault may be remedied.

The ward and its appliances are the least important element in the treatment of an insane person. Given an enlightened physician, and intelligent and well-trained nurses, the structural arrangements of any of our hospitals are efficient to obtain desirable results in the treatment of acute cases. The ward environment in any design can be adapted to requirements, if crowding can be prohibited and this is absolutely essential. A large proportion of cases of generalized insanity in the acute stage should have isolation, and this may be expedient or not, in accordance with the structural provision made for it. In the modern hospital adequate hygienic

conditions prevail, and provision is made for convenient hydrotherapeutic treatment. The wards for the recent cases should be the nearest to the medical officers, and should be easy of access. It is now generally admitted that nurses should not live upon the wards, but should have periodic repose in some other building than the one in which they are engaged.

The reception and examination of a patient is a most important period in their hospital history, both as regards the impression upon the patient and in establishing proper treatment at the outset. It is undoubtedly advantageous to have receiving wards where the patient should meet the physician and nurse, and from whence a transfer will not be required—the patient remaining upon the ward where received. The initial impression of the hospital often remains and influences their future, either for good or otherwise, and it is requisite that this impression should be as favorable as it can be made. Hence the nurse engaged in the reception of a patient should possess tact and a large fund of common sense in addition to her training. The physician will endeavor to make an early impression of honest dealing, which often requires the exposure of duplicity on the part of relatives. The exhaustion of travel may render the patient unfit for a detailed examination, and it is good practice to delay the critical examination until the patient has had repose. Urgent conditions may require an immediate examination and treatment, but as a rule the nurse can take the patient in charge and report to the physician the temperature, pulse, weight, and condition of the skin. The assignment of the patient, upon reception, to a nurse whose specific duty it will be to aid the physician in a careful observation of symptoms, I believe to be of the greatest importance. The clinical record of every case should be started at once, and trifles should be recorded. Every new arrival should be placed in bed to await the examination by the physician. The examination should be exhaustive, as regards the bodily and mental condition, and no attempt at classification or diagnosis should be made until this is completed and digested. The condition of every organ and all the excretions should be ascertained. An important examination is that of the blood, with reference to the hæmoglobin, proportion of red discs and leucocytes, and in many cases its proper staining and mounting to ascertain intracellular conditions. The circulation and condition of the arteries should be carefully noted, and I hope the time is not

distant when every medical officer will consider his examination incomplete until he ascertains the state of the retinal vessels and circulation and the field of vision. The routine examination should also include the reflexes, electrical reactions, and the discovery of all complicating neuroses, if they exist. The antecedent history of the patient in full is desirable, when it can be obtained, which is seldom. It is remarkable how little the family physician appreciates signs that to the psychiatrist are of the utmost importance. Until psychiatry is taught with greater assiduity in our medical schools, we can hardly look to the general practitioner as a scientific ally in our special branch of medicine.

Whatever the antecedent history of the case or the preliminary examination may indicate, every new admission should pass a period of critical examination and observation, and a positive diagnosis should be arrived at, and all complications determined, before the classification is settled. One of the most unscientific procedures is to classify a case as chronic, and probably incurable, upon the evidence of the history furnished with the case—in most instances imperfect—and upon a superficial examination at the time of admission. Equally unscientific is the continued expenditure of valuable time upon the mass of terminal cases that crowd most of our institutions, where the bodily functions have regained a normal state, and the mental condition is uniformly characterized by its organic cachexia. I am not one to underrate the importance of having all classes of insane under skilled observation and care; but I maintain that the medical staff of a hospital should devote its chief energies to the class of cases in which curability is a possible result, and that this should be a general function devolving upon all members of the staff, regardless of their domestic location or their fixed governmental duties. I urge constantly upon my staff of physicians the importance of keeping watch of the new cases; if not engaged in their immediate care, to study and criticise the conclusions and treatment of the medical attendant. The healthiest indication of a medical service is the exercise of the critical faculty. The asylum rut must be avoided. It is not a bugaboo; it is sometimes a reality destructive of every scientific impulse, but it is not the universal condition that Doctor Mitchell would have us believel

The period of treatment during the acute stage, and in doubtfu, cases the period of watchful and recorded observation, brings into exercise the active and highest function of the hospital, represented

by its three important elements—the physician, the nurse, the ward and its appliances. This is equally true of a general and of an insane hospital, and the distinction between the two, in a medical sense, should be slight. The mental complication of the case should not disturb the hospital methods, and in fact the only element requiring modification by reason of this complication is the ward and its appliances. So far as safety and that feature of treatment that engages object-consciousness are concerned, certain modifications of and in the ward will be required. These are familiar to you. In all other respects the general hospital standard should apply.

The physician's directions for treatment should be intelligently and absolutely executed, and the physical and mental symptoms of the patient should be accurately observed and fully reported. There can scarcely be any question for controversy in this proposition, and I think I may safely aver that therein lies the pith of all the improvement in insane hospitals methods of recent times. The improvement in personal attendance, and in nursing of the insane by intelligent and trained nurses, has made it possible to put the treatment of an insane person upon practically the same basis as the treatment of disease without mental complication.

Perhaps the greater source of complaint of our hospital methods, from the medical outsider and the medical insider, is in regard to case records. The hospital physician finds that to keep complete records of his clinical work consistent with its importance, even with the aid of a secretary, is a permanent drain upon his hours. The outsider complains that the hospital records, in a medical sense, are of no value, as they do not present detailed symptoms of a minor character that have an important meaning. Where clinical recording depends wholly upon the physician, I believe this criticism is valid.

The method of clinical recording I shall now particularize. I believe it to be ideal, and in order to be as explicit as possible in a few words, I will describe its application. As before stated I hold that the usual case record should be confined to the requirements of law, contain useful statistical information and an epitome of changes and incidents in the life of the patient. Under the direction of the physician these records can be relegated to clerks. The important medical record should be made upon the wards and it should begin with admission. The form of these records is a

matter of convenience, and is not a vital question. The object to be attained is detail in symptomatology, and in avoiding the duplication of work, hence the original notes should become the permanent medical record of the case. At the St. Lawrence State Hospital, for expedient purposes a series of forms has been adopted, a copy of each of which I herewith submit. The nurse records every incident of the case, every symptom as it is manifested. As the physician is engaged in his examination the nurse becomes his secretary. The physician's memory of clinical data does not become thereafter a factor in the case. The physician writes his prescription—the nurse copies it upon the record. The physician's directions are recorded. Charts show fully and quickly, at a glance, series symptoms. It is remarkable to what extent charting can be utilized in clinical work. My assistants chart the temperature, food consumption represented in units, amount of sleep in hours, conditions of the blood and urine, and mental symptoms. Diagrams represent topographical invasions. The clinical record at once presents to the attending physician and his colleagues a mirror of the case since admission, in an intelligent form, easy of comprehension and at the bedside. It eliminates errors the result of a lack of information. With the termination of the case the sheets, making a complete clinical history, are filed for easy reference, and from time to time they are bound in volumes. If the indexing is done by the improved card catalogue, nothing remains to complete convenience of reference, and the work can be accomplished in this perfect manner with relief to the physician and with immeasurable benefit to the nurse and patient. The medical interne's duties lying between the nurse and the physician, he performs the case work that goes to the laboratory, and a laboratory sheet becomes a part of the case record.

The application of mechanical and physical treatment is sometimes a vexatious question, owing to the usually small proportion of nurses who are qualified in all respects to administer it, and to the distribution of patients for other purposes of classification. Under a competent teacher, the training school should furnish a sufficient number upon whom should devolve the massage, Swedish treatment, administration of electricity and balneotherapy, as a feature of their course. It is a good and safe practice to designate nurses to these several duties for a specified period, with a requirement to execute them for a department, instead of confining them

to a ward duty. The instructor would necessarily have to be satisfied of their efficiency, but nurses in course of training could give an apprentice service as assistants, and thus be prepared when their turn came as direct agents. An absolute requirement is the prescription of physical treatment in as precise terms and measurement as the direction for medicinal treatment. This is not at all difficult. The galvanometer in electrical treatment; varieties, time, and location in massage; temperature and time in baths, all permit direction with precision. Gymnasium work should be in the hands of a master competent to recognize symptoms of fatigue. The physician must constantly satisfy himself of the competency of his agents who carry into effect these important remedies.

The stimulation of object consciousness, or the so-called moral treatment, is a function of the insane hospital not required of the general hospital. It does not require any words of mine to impress you with the importance of this class of medical work. The means employed are innumerable, both to modify morbid sensorial impressions and to produce new sense impressions. The psychiatrist must not only be a physician in the ordinary meaning of the term, but he must have a reliable apprehension of essential domestic felicities and of avocational impulses, that he may opportunely place his patient under conditions where mind impressions will aid recovery.

DISCUSSION.

The PRESIDENT: Dr. Wise has given us an admirable and very able summary of methods of hospital work. They are not trite, they are admirable; and not a few of the suggestions are innovations upon our common practice. They have suggested to me matters which I had not thought of before. I hope we shall have a full discussion upon this paper.

Dr. H. M. HURD: Ever since I became connected with a general hospital, I have been impressed with the fact that in institutions for the insane we spend much time doing over and over again rather unimportant things, and leaving undone many things which, by the same expenditure of nervous force and energy, we might do more satisfactorily than is done in ordinary general hospitals. I remember when an assistant physician, in an admirably organized hospital, that the amount of clerical work which I was required to do was very great. It was our habit to keep daily notes of

all our patients. We were not allowed to take them in the wards for fear the patients might be made suspicious or apprehensive. It was necessary, after the evening round was completed, to sit down and write for one or two hours the daily notes of the interesting cases. At the end of each month these daily notes were consolidated and copied into the case books, and sometimes copied a second time into another case book for the benefit of the superintendent. The result was that the histories lacked fullness and definiteness of detail, owing to the necessity of doing so much needless writing. In general hospitals the course of history-taking has of late years been very much modified. The old fashioned case book, as Dr. Wise has very properly said, is now regarded as a thing of the past. It is customary in the best general hospitals, to make the notes at the bedside. The physician making the note does not do the writing; he has a clinical clerk, or a clinical assistant, who is able to take down the notes from dictation, which are made upon the examination of the patient from day to day. If the patient's condition does not change no note is made. The notes are made upon loose sheets which are afterwards bound together in connection with the regional anatomy charts, such as Dr. Wise has mentioned, and with the temperature charts. In this way you get a very definite idea of the course of the disease in each patient, and its daily changes. Of course in the histories of patients in institutions for the insane, there are certain details in reference to the mental condition, in reference to delusions and matters of that sort, which cannot as well be kept in this manner; but I have always been of the opinion that the physician in making his rounds should dictate nine-tenths of his notes. There are certain facts as to the mental condition which may possibly be supplied outside of the wards. I am sure that the fancy which was formerly had that patients were made suspicious and apprehensive by note-taking was one of those bugbears which, with all due respect to our forefathers in the specialty, seemed to have tormented them overmuch. I have sometimes felt that those who were engaged in the treatment of the insane in earlier times were too much concerned about appearances and failed to appreciate the need of substantial medical work.

I was much pleased with the remark of Dr. Wise concerning the unwisdom of appointing as a special pathologist for an institution a man whose whole time and attention should be devoted to pathological work irrespective of any knowledge of the clinical details

of insane cases. There is great danger that the pathologist, who only sees his patients at the autopsy table and who knows very little about the course of mental diseases, may miss some of the most important facts which could have been supplied during the life of the patient. I also think that it is extremely unwise to carry out the proposal advocated in many States, to have a special pathologist to do the pathological work for the State at large. I believe that to be absolutely impracticable. I have always urged, whenever any institution thought of appointing a pathologist that he should have certain clinical work to do. I would not oblige him to go to every case every day or take the routine charge of the wards or look after the administrative part of the work. He should however see certain cases through the whole course of treatment, especially recent cases and those presenting singular or anomalous symptoms and should study them in life as well as at the autopsy table.

Dr. H. A. GILMAN: I can bear testimony to the truth of Dr. Hurd's reference to making the assistant physician an ordinary clerk. As an assistant years ago, I not only was compelled to keep the notes of all cases of the patients under my immediate charge but also to do the copying of all notes for the other divisions of the hospital. It certainly consumes a large share of the valuable time of the assistant physician that should be devoted to the patients. In our institution at present the assistant physicians take notes of the case in the ward with the patient, and those notes are either enlarged upon by the assistant and dictated to the stenographer or copied by the clerk into the permanent record of the case. In reference to the work of the pathologist in the institution, it is our custom to use the pathologist as assistant in case of the absence of either of the assistants in the institution whether by sickness or vacation. In that way he becomes familiar with all of the patients in the hospital more or less. He is especially enjoined to take notes of the condition of the recent cases as they are admitted to the institution and to follow them up. The several assistants unite with the pathologist in all autopsies that are held in the institution and also are present frequently during the pathologist's work in the laboratory.

There is just one thought which occurs to me in regard to the clinical work of the nurse: May there not be danger of the assistant's relying too much upon the ability of the nurse and becoming negligent and is it not wise to caution the assistants in that direction?

Dr. G. H. Hill: I wish to thank Dr. Wise for his paper. He covered the ground pretty thoroughly, mentioning very many things which can be done to improve the medical work in our hospitals for the insane. I will only speak of one point which I am trying more and more to make prominent in the institution of which I have charge. We have 925 patients at present and 45 counties are tributary to the institution. We are admitting on an average more than one new patient, who has never been in the institution, daily. What I wish to emphasize is the discrimination which was mentioned by the Doctor between the new patients and the old ones, between recent and promising cases and those who are not so, between critical cases, where there is constitutional disturbance and insane persons who have no such disturbance of the body or any of its organs. The attention of the assistants is called to this matter from week to week and the nurses are asked to assist in watching for all of what may be called acute symptoms, to watch closely all patients who are undergoing either physical or mental changes. This I carry forward in the classification of the patients, having several wards, as Dr. Wise suggests, for the admission of cases,—at least four wards for the reception of patients of each sex. There is a ward for the excited when admitted, a ward for the sick and infirm when admitted, a ward for those who need to have the most pleasing and inviting surroundings upon admission, and then a ward for an intermediate class who are not sick, nor disturbed and yet not fit for the very best ward. Of course in order to keep those wards for recent cases, we have to be eliminating every week and certainly every month certain patients who do not deserve to be retained in the wards where close medical attention and skilful nursing are required.

Dr. C. K. Clarke: We have all learned very valuable lessons from what Dr. Wise has told us, and I am sure the majority of us will be very glad to apply many of the things we have learned to-day. We are all trying to advance along the lines that Dr. Wise has suggested. In our own experience we have found that one of the suggestions made, one that we have had in practice for some time, is of the greatest value, namely, a separate hospital building for special cases where the hospital idea can be carried out in a way not possible when we had to care for them in the wards of the institutions.

The only point I could take exception to in Dr. Wise's remarks

is in regard to cases that we are inclined to call chronic. I think we should be very careful in calling any case a chronic one. I think we should not neglect these at any cost, because we are quite often gratified by a recovery that was quite unexpected.

Dr. A. B. Richardson: It strikes me that there is nothing truer than the apt quotation in the paper of our worthy President this morning that an institution is the shadow of a man. I have been impressed, during the reading of Dr. Wise's paper, and during the discussion, with the fact that all this paraphernalia is for the purpose of developing methods of thought and capacity for analysis and for determining the rationale of phenomena. The paraphernalia is important no doubt; everything that leads to precision is important. Precision in methods is an absolute essential in the acquisition of information that will be of use hereafter to ourselves and others; for that reason all these tables and the methods of recording clinical notes must unquestionably have a place. The value that these methods will have must be determined after all by the guiding head of the institution, by the capacity for analysis which he possesses and by the practical features which he is enabled to introduce into these paraphernalia and the capacity for deducing conclusions from observed phenomena that he himself instills in those about and under him. I have often been impressed with the very great importance of the personal contact of the medical head of the institution with his subordinates. You will be surprised to see how long a time it takes to inculcate in them the habit of analyzing correctly the phenomena going on about them. This pertains not only to nurses beginning the work without the advantage of a course of training but also to those who have been subjected to courses of training and to assistant physicians as well. Assistant physicians need this constant intercourse with the medical head of the institution, and without it a great deal of this paraphernalia will be lost, while with it a great deal of it will not be necessary. The point towards which we should strive in every method that we introduce into hospital management is, to educate our subordinates to observe correctly and to properly analyze what has been observed. Much valuable material constantly goes to waste because of a lack of this, and very much of this, it seems to me, is due to insufficient time that the medical head gives to the training of subordinates. No one else can possibly do this. He must give the training to his assistants; he must give the direction to his pathologist and through

these assistants he must give directions to all the individuals who are brought to bear on the personality of the patients under him.

I can only speak words of commendation of Dr. Wise's paper. Everything that I notice in it in the way of practical application of these ideas is correct, and we can all join in endorsing what he has said.

It has always struck me that in the technique of the pathologist it is almost an absolute necessity that this should be separated from a large part of the other work of the institution. We must have some one who has had a prolonged training in this direction to enable him to accomplish anything of much practical value. Of course I agree with Dr. Hurd that he must combine this with the history of living cases in order to make it of very much value. Post mortem pathology alone, as has been well said, is a very imperfect pathology, and unless united with the study of the living cases will very largely lose its efficiency.

Dr. George H. Rohé: I feel that Dr. Wise has given me personally, very many suggestions, and I shall consider them simply as suggestions. If Dr. Wise intended to say, which I am sure he did not, that everybody here should adopt his methods exactly, I for one would very decidedly disagree with him and say, I would not do it; they probably would not altogether suit me, but, as suggestions, they seem to me extremely valuable.

It occurred to me, and I say this, subject to correction, because I have not any positive and practical knowledge of my own on this subject, that there is a little too much attention being paid to the didactic instruction of nurses: and that as Dr. Wise said, the bringing of the nurse closer to the patient at the bedside is what is needed. From what I have seen of nursing instruction in insane hospitals, it has seemed to me that the didactic instruction was carried too far at the expense of practical instruction. There is, perhaps, a danger that the nurse might get a little "swelled head,"—no matter to what sex the nurse belongs,—if too much attention is paid to that side of the nurse's education. Her or his business is to handle the patient subject to the direction of the physician; and here I think perhaps it would be well to insist a little more upon the direct responsibility of the physician for the patient, and to leave as little as possible to the merely mechanical agent, because the nurse must be more or less the mechanical agent and not the intellectual agent; the physician himself is that.

I have never been satisfied with any form of case record that I have seen. I have only had the opportunity of glancing at the form of record that Dr. Wise has passed around. I have used those diagrams with a great deal of satisfaction and comfort; they relieve one's memory a good deal, and one is apt to remember more accurately the features of the disease, if he puts them down on the diagram at the time of observation. But any formal style of blank has always been something that I could not use for any length of time; I would use it for a while and then it would drop out. Essentials only should be noted. In the physical condition and mental manifestations of the patient, everything abnormal should be recorded. Every patient differs from every other patient. I have solved the problem now for myself, by having simply a small memorandum book for each patient. The patient's previous history is written in it on admission, and then the current history is put in it as observed. On the outside are put the patient's name and date of admission. These books are arranged alphabetically and can be found as quickly as a card catalogue. The formal record will do for the man who gets it up, but it will have much less value for a great many other men who have had nothing to do with its preparation.

Dr. Richard Dewey: It seems to me that the admirable paper of Dr. Wise is one of many indications that we are entering, in this second half-century of the existence of this Association, upon a new era. We have before us the task of bringing into use, and into practical use, the great therapeutical resources that newer chemistry and laboratory methods have placed within our reach. It is a task that we are beginners in, in many ways, and every effort to systematize it and to suggest lines upon which it may be followed out, is of value; and I welcome, most heartily, such papers as Dr. Wise has given us on this subject. It is impossible at this time to say what the limits of possibilities may be in this direction; but the possiblities are great and inspiring. We are sensible, most of us, in the places in which we are working, in charge of institutions, of the limitations with which we have to contend, in the equipment, in some directions, and in the assistance needed for carrying out this work. It seems to me that one of the most useful advances being made is that of employing internes. This is a practical means of enlarging the usefulness of institutions, as it will relieve the assistant physicians of more purely routine duties, and give

them opportunities for work of a higher and more valuable nature.

A feature of instruction in medicine in general, which is also coming into prominence, it seems to me, is going to be of a great deal of assistance in the future, and that is the more extended instruction in psychiatry which is given in the medical schools.

I agree, to a certain extent, with Dr. Rohé, that it is only possible for each of us to add our individual suggestions as to what we think can be made useful. Each in his special field may contribute whatever he can to the more full understanding of these matters by those upon whom we ultimately depend, that is, our boards of trustees and managers, and finally upon the law-making power, which is the one that must give the means of carrying out a great deal of this work. Whatever can be done in the way of enlightening the laity upon this subject seems to me to be of great importance.

The PRESIDENT: It is fair to say that in the presentation of the work of the training schools, it is impossible to put in print the practical work that is done in the bedside teaching. We have to put in print, in the brief way in which it is done, the description and enumeration of the didactic work, but the other sort of work is understood to be done as an application of the didactic teaching.

Dr. H. M. HURD: It is said of Professor Whitney, of Yale College, who has recently passed away, that his ability to accomplish his wonderful results was due to his pre-eminent ability to discard what was not essential; in other words, he devoted his time and attention to those things which counted, and those things in his daily work which could be done as well by others he delegated to them. As hospital superintendents it is our duty to consider those things which are essential, and to place upon assistants, nurses and others connected with the institution matters of detail which they are equally competent to do. I cannot understand how we are to make any advance in our work if detailed thorough clinical histories are regarded as non-essential. They are just as much a part of the medical work of an institution as the study of pathology. No one thing should be omitted in hospital work, but everything should take its proper place. We ought to have medical help enough to do every branch of medical work as well as it can possibly be done, and we should not stop short of that. Whether it requires one physician to one hundred patients, or one physician to fifty patients, if the

medical work of a hospital is worth being done at all, it is worth being done in the best possible manner.

Dr. Frank C. Hoyt: I wish to commend especially that part of Dr. Wise's paper in which he mentioned the objectionable features of having a special pathologist. I found, after some little experience in pathological work, that the cases were much easier worked up and the pathologist arrived at much better conclusions, by following the cases during life. In the later years of my service I had a very admirable arrangement, by which, whenever there was a case of any particular interest, even though not in my service, I was asked to see it: I followed the case through clinically, even though I did not treat it, and after the case terminated, I took it up and made the autopsy. I think my conclusions were much more practical than they would have been had I simply seen the case after it reached the dead house. The special pathologist who sits cooped up in his little laboratory and spends nine-tenths of his time in bacteriological work,—of which eight-tenths is not applicable to insane hospital work,—is not doing himself or his institution justice. I spent a good deal of time on bacteriology for my own recreation and instruction but not to the advantage of the institution. When I went to work on the brain lesions and kidney troubles and general organic lesions, I did do good work for the institution.

With reference to the keeping of records, there is one point that I want to mention. I used to keep a good many records, and I am sure that I learned to make the record of a case much more intelligently, and in much better terms, by the experience gained in putting the case on record where I knew it would be read in years to come, than I would have done had I dictated my notes to a stenographer.

I think that if one man has a hundred patients under his care and does his full duty by those cases, keeping the clinical histories as they should be kept, he has about all he can well attend to.

The keeping of records I found to be of very great value to me, because I had a tendency, as all young men have, to want to go fishing and hunting when my work was done. While a little of that is all right, yet if you sit down over your case book each day and jot down the notes of the day's work, you occasionally strike something that calls you to your library and you go to your library and find a great deal about that case that you did not know. Before you know it, the case which you thought lacked interest is

full of interest and value. I have been through a number of services in different hospitals and in my own and I have seen cases of interesting nervous lesions which had never been discovered at all, due, doubtless, to the fact that the physician thought he did not have much to do because his service was a chronic service and he simply went over it in a slipshod way.

Dr. Adolf Meyer: It is delightful to hear the plans put before us by Dr. Wise. Dr. Wise seems to have unusual opportunities in being able to apply in his service all those things that he has presented to us. Such opportunity is not given to everyone for the reason that in many States the superintendents are not allowed to add to their staff members enough to make that work feasible.

In connection with this I should like to make a remark with regard to what I think of the position of the pathologist, since I have some personal experience in that line. Where I had the privilege of studying at Zurich in Switzerland, there was no special pathologist, for there was no need felt for one. The medical superintendent, who devoted most of his time to the medical work, had practically very little responsibility in the business department, He had done a great deal of scientific research in his younger years and every one of the assistants had done, before coming to the hospital, quite a good deal of laboratory work. There was one physician to 130 patients, and the work could be done so that with the previous education of all the physicians quite a good deal of scientific research could be made without a special pathologist. It seems to me that in the present condition in a great number of States, where there is one physician to 300 or 400 patients, that the authorities are more easily induced to allow an entering wedge in the shape of a pathologist for the improvement of the medical work. Of course if the pathologist should devote all his time between the four walls of the laboratory I should consider the whole matter a great mistake because the pathologist must be in contact with the active life of the hospital, and the clinical work and his work must be done in perfect harmony, and with a view to the same ends.

It would be almost impossible under the present conditions, to secure any further addition to the hospital staff. The fact that there ought to be one physician for every 150 patients could not be brought before the Legislature with any hope of success, whilst the idea that one pathologist can take the place of a great number

of physicians seems to appeal to the authorities. The assistants, if they are so few, are unable to study, and are unable, by themselves, to do the work which the pathologist can do. For this reason I would not absolutely condemn the existence of a special pathologist in the institution although I should be very glad to see the day when none would be necessary.

Dr. C. R. Woodson: I was very much pleased with Dr. Wise's paper. I am decidedly in favor of a well-kept clinical record and believe that the physician should keep that part of the record of his service that is necessary to give a clear insight into the work he has done. The keeping of a record inspires a feeling of pride or a spirit of rivalry or a disposition to excel. If a physician takes daily notes of cases, noting positive or negative conditions, concerning the physical health or the mental conditions of the patient, if he has overlooked an important cardiac lesion or a kidney lesion or a lesion of any of the other organs, and his patient dies, then the observers at the autopsy are of the opinion that he has neglected something. The failure to keep an accurate record creates a careless disposition on the part of the physician. We need no better illustration of this than the contrast between the well-trained hospital physician and the busy and careless outside physician. If a physician knows that the record can be drawn upon him at any time, he is cautious about his examination, he is cautious to make a correct diagnosis, and he prescribes after more mature deliberation. I think the clinical record is of decided benefit to the patient, to the physician and to the institution. There are certain things the nurse should do. So far as the general nursing is concerned, the record can be kept and reported to the physician; but the physician ought, in my judgment, to keep a record for his own satisfaction, for the satisfaction of the institution and for future reference. We are often called upon to give records of cases and also to consult the record of a case of former admission to contrast it with a later admission.

Dr. L. C. Mead: One word about clinical records. It has always seemed to me that one of our first duties in the training of assistants is to require that they become careful and competent clinical observers. As an assistant physician I found that if I kept an incomplete record it was because of my failure to understand fully my patient. Since I have been in charge of an institution I have usually found that the best estimate that I could make of the work

of an assistant was the estimate that I formed on looking over his clinical records. In no other way that I know of can assistants be stimulated to so great care in their examination and so great caution in their treatment. I believe, too, that it would be to their advantage to reduce their notes to writing themselves, for I believe that I remember best the observations that I reduce to writing without the use of a stenographer.

Dr. P. M. Wise: I am exceedingly gratified that the cursory suggestions of the paper have been overwhelmed by the excellent suggestions of the discussion which followed it.

There is one point that I think I should correct. The discussion has been largely upon medical records—upon recording clinical symptoms. I did not want to emphasize that quite so much, for it does not comprise the whole of the hospital methods that I intended to cover, or even the greater part of them. I think, as Dr. Rohé said, that it is immaterial what forms are used for your records if you gain that method through which a proper clinical history of the patient can be had, which I consider an essential. We cannot look upon that as a non-essential or we break the back-bone of modern hospital methods. You can gain it in any way you please as long as you get it and get it at as little sacrifice of time to the medical officer as possible; and the method I have briefly outlined I think is as little a burden to a medical officer as any I have seen.

I also agree with Dr. Gilman that there should be a limitation to the nurse's duties in respect, especially, to the interpretation of symptoms,—*that* she should not do. Her duties are to observe and record (if she does record) facts and nothing else; the interpretation is left to the physician entirely.

In regard to what was said as to the number of physicians, that one physician to one hundred cases was more than necessary,—I should say that any of us might agree that recent cases should receive at least five minutes of a physician's time daily, and at that rate he would spend nine hours a day in the visitation of one hundred patients. We have an eight hour law in the State of New York and I think that these hours of labor would be prohibited under the law.

I desire to thank the members of the Association for the pleasant manner in which they have received my suggestions.

THE DIETARY OF THE NEW YORK STATE HOSPITALS.

BY CHAS. W. PILGRIM, M. D.,
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Recognizing the necessity for a standard dietary for hospitals for the insane, the Commission in Lunacy of the State of New York, in June,1893, requested Prof. Austin Flint, the eminent physiologist, to prepare a table of the requirements of the insane, to be based upon the daily loss of material by the organism.

As there were no dietary reports in use exclusively for the insane, in either Europe or the United States, the first report made by Professor Flint was necessarily somewhat experimental. After examining carefully all the data obtainable and taking into consideration the fact that a healthy man, classed as a non-worker, but taking moderate exercise, eliminates about 200 grains of nitrogen and 4,000 grains of carbon in twenty-four hours, while a man classed as a worker eliminates 300 grains of nitrogen and 6,000 grains of carbon in the same time, the following was fixed upon as a suitable daily ration, based upon the exact physiological requirements of each person to be provided for in hospitals for the insane:

Meat, with bone, including salted meats, fresh and salted fish. and poultry	12 ounces.
Flour to be used in making bread and cooking (may in part be substituted by corn-meal and macaroni)	16 "
Potatoes	8 "
Milk	8 "
Two eggs	4 "
Sugar	2 "
Butter	2 "
Cheese	2 "
Rice, hominy, or oatmeal	1½ "
Beans or peas (dried)	1½ "
Coffee (green)	1 "
Tea (black)	⅛ "

This table went into effect in all the hospitals of the State on the 1st of October, 1893, and in September, 1894, each superintendent was requested to make a report of the results of the year's trial, with suggestions based upon the experience thus gained. These various reports were examined by Professor Flint and many of the

suggestions contained therein were adopted in the revised table. Without going into details it may be said, in brief, that the allowance of flour was reduced from sixteen ounces to twelve ounces, one egg was substituted for two, and cheese, which the patients did not seem to relish, was reduced from two ounces to one ounce daily. On the other hand the allowance of milk was doubled, thus giving sixteen ounces instead of eight ounces daily, and the allowance of potatoes was increased from eight to twelve ounces. The use of five-sixths of an ounce of coffee, in the berry and roasted, was recommended in place of the ounce of the green berry, as experience showed that coffee could be better and more uniformly roasted by experts than by the hospital employés. In the purchase of beef it was recommended that one additional fore-quarter be purchased with each whole carcass in order to give an extra quantity suitable for soups and stews. In the matter of mutton, veal, pork, etc., it was recommended to buy the whole carcass instead of special parts only, for, with the different classes to be provided for, nearly every part of an animal can be profitably and economically used. In the purchase of certain other articles, such as coffee and tea, the consensus of opinion, as expressed in the revised report, was to the effect that impurities and adulterations, even when not positively harmful, take away from nutritive efficiency and are not in the line of true economy. It requires but little experience to learn that the waste of flour, milk, butter, etc., of poor quality, involves more expense than the purchase of first-class articles.

This revised report, which represents the accurate investigations of an eminent physiologist, combined with the careful observations of the several superintendents and the practical experience of the stewards and cooks of the various hospitals, contains many valuable suggestions which can not be fully presented within the limits of this paper. It is thought justifiable, however, to make the following quotation:

"Ordinary supplies of meat contain 20 per cent of bone. The meat includes a considerable but variable quantity of fat. Veal should never be supplied unless it is of the best quality. The same remark applies to fresh pork. A calf, when dressed, should weigh about 130 pounds. A young hog, when dressed, should weigh 120 to 140 pounds. A dressed sheep should weigh 65 to 120 pounds. A dressed steer should weigh 650 to 900 pounds, the fore-quarter weighing 190 to 250 pounds, and the hind-quarter 140

to 200 pounds. About 40 per cent may be deducted for salt pork, hams, or bacon.

"One hundred pounds of flour will make 136 pounds of good bread. Corn-meal may be substituted for flour, but to a limited extent, as it is less nutritious and often disturbs digestion. Macaroni may be substituted for flour, but only as an occasional luxury. Bread should be made every day, and what is left over should be used in cooking and not be served again. If bread is made during the night and the baking finished as early as 3 A. M., it may be served the same day. If to be served the next day, it should be baked as late as practicable in the afternoon or evening. If bread is simply warmed through in the oven immediately before serving, the moisture absorbed by the gluten is driven off, and the bread is much more palatable and digestible; but bread should never be dried in this way more than once.

"The use of fresh vegetables in season will permit a suspension or reduction of the rations of rice, beans, and peas, with some reduction in the ration of potatoes. Fresh vegetables and fruits should be used freely. Onions should be used freely in cooking. and should be served occasionally as a separate dish. Turnips, parsnips, salsify, carrots, and beets may not strictly be classed as fresh vegetables, but they may be frequently used with advantage."

Discarding fractions, in the estimates of certain articles, the revised table of supplies necessary for 100 persons for thirty days is as follows:

Meat, with bone, including salted meat, fresh and salted fish, and poultry, total	2,250 lbs.
Flour (may be in part substituted by corn-meal and macaroni)	2,250 "
Potatoes	2,250 "
Milk	1,500 qts.
Eggs	250 doz.
Sugar	375 lbs.
Butter	375 "
Cheese	188 "
Rice .94 Hominy .94 Oatmeal .94	282 "
Beans or peas (dried)	282 "
Coffee	156 "
Tea	24 "

After nearly two years' experience with the table, in its original

and modified form, I have no hesitation in saying that I think that with slight exceptions, it answers the purpose admirably, and much better than any table with which I have had experience. Of course it should be regarded as very elastic, and frequent changes may be made with advantage to patients as well as to the finances of the institution, when fruits and vegetables are in season and available at low prices. If the various articles mentioned in the table are freely interchanged, a variety of food may be obtained without increasing the cost. This is of the utmost importance, for it is not enough to give the proximate dietetic substances in proper amount, but variety must be introduced by employing alternately different substances of the same class.

In too many of our institutions there are certain dishes for certain days, which soon become known to the patients, so that they know exactly what they are to have before they enter the dining-room. In order to overcome this, Dr. MacDonald of the Dorset Asylum has adopted the plan of having his cook, at the beginning of the week, furnish him with a list of the dinners which can be prepared from the available stores, and from this list he selects seven, and then settles the day upon which each of the dinners which he has selected is to be given. This plan has undoubted advantages and is worthy of trial.

Dr. Flint suggests that flour should be substituted at times, with the object of variety in view, with potatoes, rice, hominy, and oatmeal. Butter and cheese may be interchangeable in the proportion of one pound of butter to two pounds of cheese; eggs and milk in the proportion of two eggs to one pint of milk; and eggs and meat in the proportion of eight eggs to one pound of meat. When fruits, fresh and dried, are used in abundance a reduction may be made in eggs, butter, cheese, and milk. While the table is intended for patients not under extra diet and attendants only, and an addition of 25 per cent in meat, flour, and potatoes is suggested for workers, Dr. Flint says that he thinks that with good cooking and careful management the supplies indicated may be made to cover the entire population of most hospitals. My own experience does not justify this conclusion, for we have had to add the 25 per cent regularly for workers, and so far as milk is concerned we have found the allowance too small. At the end of the first year I suggested that the allowance of this article should be doubled or increased from eight to sixteen ounces per day, and

it was done. I am now convinced that even that increase was less than it should have been, and that an additional allowance of one quart for every ten persons would be none too much. Thus, for 1,000 patients the daily allowance should be 600 instead of 500 quarts. I think we will all agree that in extra diet, which, in spite of our best efforts, is the only department in which much variety can be obtained, there should be no set rules or printed regulations. In many cases of recent insanity the question of diet is one of life or death, or of speedy recovery or confirmed dementia. Supplies from which tempting dishes might be made by an experienced cook should be found among the stores of every asylum, and as milk enters largely into all such dishes it is certainly the one article of diet in the use of which there should be little or no restriction.

The question of the preparation of extra diet is one of great importance and great difficulty. The chief cook is generally too busy with his regular duties to give it much attention, and when there are several kitchens as there are in a large hospital, a second cook for this special work is not always to be had. In some cases I have solved the question to my satisfaction, as well as to that of the patients, by permitting the woman nurse, who is now one of the regular number of attendants on most of our wards occupied by men, to go to the kitchen in the afternoon when the heavy work for the day is over and prepare such dishes as her patients have expressed a wish for. An omelet, a custard, a chop, or a piece of steak thus prepared often appeals to the dulled appetite of the patient when the regular fare would go untasted. Of course this practice can not be carried out to any great extent, but so far as it can be, it answers extremely well. Another question which to me seems to be of importance equal to that of the kind and quality of food is its service. No matter how well the food may be cooked, or how good may be its quality, if it is served on cheap china, or tin plates, in a large dining-room seating several hundred, where the convalescent must almost touch elbows with the untidy dement, where the fastidious man must sit where he can see the glutton gorge, or where the nervous and timid melancholiac may be startled by the piercing cry of the epileptic, it goes without saying, that in many cases the food will go untasted and the strength will wane.

A long experience with associated dining-rooms, where large

numbers in all conditions are obliged to dine together, has made me unalterably opposed to them. On the other hand, I am also opposed to the ward dining-room which fills the ward with the odor of food and dish-cloths, causes the development of bugs and leads to clandestine cooking on the part of the nurses. My idea would be to have a central kitchen with dining-rooms divided by sliding doors, or arches and screens, so that not more than a hundred patients in any case would be together. It is easy enough in large institutions to classify patients so as to bring them in groups of one hundred, but when we attempt to put five or six hundred together, it can only result in confusion and dissatisfaction. By the arrangement suggested all the advantages of serving food warm and quickly, of having the work concentrated and of giving the patients the benefit of a change from the ward at least three times daily are had, while none of the disadvantages of herding and indiscriminate mixing of all classes are experienced. I would also have all dining-room work, except the very heaviest, done by women, for I do not believe that men can do such work to the satisfaction of any conscientious superintendent.

The tables should be well furnished and all unusual or peculiar cutlery, such as short-tined forks and knives with only a small cutting edge, should be discarded; there should be table cloths and napkins of good quality on the majority of the tables; wild flowers should be freely used in summer where the conservatory does not furnish the cultivated variety, and, above all, the number of servers should be sufficient to see that the food is served quickly and well. If we can accomplish all this, the question of dietary will be more than half solved, and much of the present dissatisfaction with this part of hospital and asylum management will cease.

DISCUSSION.

Dr. P. M. Wise: I had not intended to say anything in the discussion on this paper as I probably could not offer any criticism with propriety, owing to my having charge of one of the hospitals under the dietary regulations. There are some admirable points in Dr. Pilgrim's paper and I hope the paper will be discussed by the members of the Association who are not attached to the dietary officially. I think it is proper, indeed, to say that the State Commission in Lunacy did not consult the medical superintendents of the State hospitals in regard to the establishment of the dietary. The first

intimation we had of this work—I speak as one, of course,—was the issue of a manifesto based on Dr. Flint's report, and, as Dr. Pilgrim has well said in his paper, it was found that the dietary would not work satisfactorily; that if we were limited to the articles and quantities mentioned in the report of Dr. Flint we would be unable to give our patients what we considered requisites, and had previously given them. The dietary was amended after some very earnest protests on the part of some of the superintendents of State hospitals, and those items, in brief, were given by Dr. Pilgrim in his paper.

Probably there is no objection to the establishment of a limit in a gross form of the articles of supplies that should be issued to State hospitals. I mean by that, that it might be proper to make some general limitation on the quantity of supplies that are issued; but it stands to reason that it cannot be very closely confined to quantities, for the reason that the amount and quality of supplies depend very much upon the character of patients you have to feed. Dr. Pilgrim mentioned that, and particularly with reference to the consumption of milk; but it will apply also to many other supplies. At present we are governed entirely by these quantities. If we estimate for more sugar by even a few pounds than will supply two ounces per capita, or whatever it may be, for the number of patients we have, it is disallowed. This has been earnestly protested against and superintendents, especially some of them, have appealed to the Commission to allow a certain flexibility in this respect.

I do not want to appear as a critic; I cannot very well without exciting more or less animosity, and I think that the paper could be discussed with more propriety by other members of the Association. I believe, as I think all of you believe, that the best judge of the supplies that should be issued to the State hospital is the medical superintendent, and within reasonable limits his judgment should prevail.

I am very glad and surprised that Dr. Pilgrim takes the view he does of dining-rooms. I have never believed in associate dining-rooms for the insane and have never recommended it, especially for acute cases. I do not believe that it is a judicious thing to place acute cases in a large dining-room associated with several classes of patients and for that reason have advocated ward dining-rooms as being much better for the acute class of insane. I think associate dining-rooms are advantageous for certain classes but not for

all. There should be some distinction made between recent cases, cases that have not been thoroughly classified and that are under active treatment, and those who have been long resident in the institution, or, in other words, have become "institutionized."

What the Doctor said about the preparation of food and its serving is admirable, and I think we all agree with him that the only reason it is not carried out is the lack of funds. Table-clothes and napkins are desirable but it is not every hospital that has the privilege of using them.

Dr. H. A. Gilman: It does not seem to me that it is practicable to legislate what each patient shall eat or drink or wherewithal he shall be clothed. It seems to me, as Dr. Wise has suggested, that that is a matter that must be left to the individual superintendent. It is a matter that each one of us in our different localities must determine and to a large extent according to our environments. As to the question of beef or of meats and their service, we are not all situated alike. With us, we have a little packing house and we either raise the cattle and fatten them ourselves on the hospital farm, or we purchase the best fat steers that can be had of the feeders in our vicinity (and our county furnishes the finest beef that can be had in the country, or as fine) and we as a rule kill nothing but 1,500 pound corn-fed steers or thereabouts. We kill from 25 to 50 and put them in our cold storage, never using the meat until it has been in cold storage two weeks. In that way we have the very best beef possible. Regarding the quantity of beef,—we cannot say that each patient shall have just so much beef or so much meat of any kind. We have a large class of patients with us who work out of doors on the farm or in the garden, and to those working men we give meat three times daily. All patients have meat twice a day. We cannot say just how many spoonsful of sugar each patient must be limited to, especially in fruit season, when we want a good deal more sugar than we do on other occasions perhaps; and so I might go on with the illustration. It seems to me that it is going a little too far to tie the hands of the hospital superintendent in regard to the care he shall give his patients. A governor of the State of Iowa criticised me somewhat in regard to the quality of beef which was served to the patients. He thought what was good enough for the prisoners at the penitentiary, who were sent there for crime, was good enough for our patients. After showing him that it was no economy to slaughter old cows

and beef of that character, and that the test would indicate a shrinkage of 61 per cent in beef of this class while it was only 33 per cent with the best beef; and after asking him if his wife or his daughter were a patient in the institution, an unfortunate invalid, he would like to have them given bone and gristle, I said to him that as long as I was superintendent of that institution I proposed to serve for our people the very best beef and the best of other supplies, and when "the powers that be" over me were dissatisfied they could take my head.

In reference to congregate dining-rooms,—I confess that after seeing a good deal of this plan I have not been particularly pleased with it, especially for the class of patients which Dr. Wise has described. I am quite sure that convalescent patients do not consider a congregate dining-room desirable. Indeed, I have had a good many express the sentiment to me that they preferred the small dining-room for each ward so that they could live more as a family, and in the small dining-room two or three tables so that there could cluster around a group of six or eight patients. This certainly would seem more home-like and more natural.

There are every now and then patients that become more or less disturbed, perhaps an epileptic patient or a filthy patient or a disorderly patient, and I have had the same criticism from patients in reference to having them at the table where there was a large number of patients associated together in a dining-room.

I have heard the criticism that the food when served to a large number of patients in very large congregate dining-rooms was not as warm as it was when taken directly to the smaller dining-room and served more promptly than it could be in a large dining-room with a large number of patients. I have seen so little that would seem to indicate a superiority of the large dining-room over the smaller ward dining-room that I have not thought it wise to make the change in our institution.

Dr. George H. Rohé: In speaking upon the paper of Dr. Pilgrim I fortunately am not placed in the position that my friend Dr. Wise is. The lunacy commission in my State has not undertaken to prescribe certain food for the hospital. As a general principle, however, I think the lunacy commission is right, that it is a step in the right direction to reduce to some sort of scientific system the supply of food. I was a good deal interested in this supply table and I took the trouble several months ago to compare care-

fully the items in the revised table, as issued by the commission, with the supplies as issued in the Maryland Hospital, and I found that simple experience, without any scientific guide, had resulted in almost identical quantities of the different food articles used. The variations were of a minor character. Dr. Wise is quite right when he says that there should be some flexibility in this table. Dr. Gilman certainly misapprehended the spirit of the supply table when he said that it pretends to prescribe a certain amount of food for each individual patient for each day; it is intended to strike an average, and it is based upon physiological research, upon experiment and clinical observations that have been made in Europe and this country for many years.

I am forced to disagree with Dr. Pilgrim's criticism of the associate or so-called congregate dining-rooms. My own observation is that the congregate dining-room is a decided improvement upon the ward dining-room. The supply of food can be better regulated, can be more promptly furnished in a better manner and can be more accurately controlled by medical officers; and furthermore the patients get a larger quantity of food when furnished in the associate dining-rooms than when furnished in the ward dining-rooms. Of course all patients in a general insane hospital cannot be taken to a general dining-room; some must be fed in bed and ought not to be transferred to either a ward dining-room or a congregate dining-room. The means of getting to a general dining-room should be convenient. I cannot understand the objection of Dr. Gilman that in a large congregate dining-room the food supply cannot be furnished to the patients as promptly and in as good condition as in ward dining-rooms spread over five or six acres of ground.

Dr. C. G. Hill: The measuring out and estimating the exact amount of food for each patient, I think is impracticable in connection with an asylum. That might be well enough for soldiers on the field who are in good health and taking about the same amount of exercise day after day; but even soldiers have the privilege of varying their diet when it becomes monotonous by resort to the sutler, and when the sutler fails, there is the possibility of foraging. The patient in the asylum is shut out from this; he must submit entirely to the diet. I notice in this arrangement that there is no latitude for the variations of the seasons, nor is there any margin given for the amount of exercise the patients take.

Some men work out-doors; others do not. Then again allowance should be made for the character of the disease. The patient with acute mania will require and consume a great deal more food than one with a more passive form of mental disease. I cannot see how it can be practicable to limit the dietary of the asylum to anything like the lines set by the New York commission.

Regarding the congregate dining-room,—it seems for years to have been the sentiment of this Association that congregate dining-rooms were the thing, so much so that I have been afraid to mention the subject, although still holding to my old views. While I dislike to differ with my friend Dr. Rohé, because we have a long ride to take together and I do not want to argue all the way back to Baltimore, yet I must say that I think the general opinion will in a few years swing around to the old standard. I have seen no reason for changing my views, as the system we have is very satisfactory. Our institution is formed into seventeen wards, each containing 20 to 40 patients. In each of these halls we have a twin dining-room. These are separated by a sort of arch-work which answers an excellent purpose though it was not put there designedly, but was an accident of the architect. Now these two dining-rooms represent the two classes of patients in each ward; the better class eating in the outer dining-room, which is a little better furnished than the inner. Thus there is always a chance for promotion. In the best dining-room we try to give as good a table service as any ordinary person would desire. This is enhanced and made more attractive by good china and silver table service, clean, white table-cloths and napkins, with fruits and flowers in season. The other table is furnished in the same manner except its plainness and the absence of ornamentation. When the patients can behave well at the first table they are promoted to the second. With this incentive our table manners are very good. Another matter not taken into consideration in the congregate dining-room system is the individual peculiarities and idiosyncracies of the patient. The nurse for each hall in our institution regulates the diet for that hall except when special diet is ordered. While there is a general diet prepared in the kitchen, she can elect a particular diet for any of her own patients. Our nursing is all done by the sisters of charity, and they make it their life work: it is their home, and each patient becomes her child, as it were, and is treated and cared for as a mother would care for her own child.

This gives room for a great deal of latitude in the selection of diet. One patient eats no meat, another does not eat fish or eggs, and something else must be put in its place. The nurse, knowing the peculiarities and tastes of each individual, always provides for that, and sees that each one is properly fed and nourished. Until I find something to the contrary, I shall still labor under the opinion that this serves the best interests of the patients, and in serving the best interests of the patients it serves the best interests of the community, for anything that will relieve or cure the patient is certainly a matter of public economy.

Dr. Arthur H. Harrington: One suggestion which this paper contains it seems to me is a very valuable one, and that is the dividing of the congregate dining-room into separate compartments which would allow of the separation and classification of the patients. It seems to me that this is valuable because it will allow the violent patients and the patients who are troublesome to be by themselves where they will be more easily controlled; and then the disagreeable patients, those who are untidy in their table habits, could be put by themselves; and those patients who are more observant of table etiquette could be by themselves. In the institution with which I am connected, we have recently added more accommodation for patients, and in enlarging our dining-room we have done this very thing in a measure. We have made one division, so far, by which some of the violent patients can be by themselves. We, also, contemplate making one or two other divisions by which the disagreeable patients will be by themselves and some of the better class by themselves. Now I do not see why this plan could not be carried on almost indefinitely, allowing several divisions and classifications. The dining-room service would still be at one central point, while many of the disagreeable features of the congregate dining-room would be obviated.

Dr. Herbert B. Howard: There are one or two things in connection with the congregate dining-room that have not been brought out. I have tried one for a little over a year. When we thought of making use of the congregate dining-room our attendants were very much opposed to it. One of the things it does for us is this: Our dining-room is so situated that the men always have to go outdoors and the women can more easily get to the dining-room outdoors than through a covered passage-way. On this account, the attention of the attendants is necessarily drawn to the

attire of each individual patient more particularly at these times than formerly. That in itself is worth something in a chronic asylum. It does away with another thing: Where patients stay long the good workers get to be pets, and where we have a great many dining-rooms these pets sometimes get food that is intended for other patients. In the congregate dining-room this thing is not so apt to happen. I think the matter of dividing up the congregate dining-room is a good thing. Ours is not, but I think it would be better if it were so divided. The necessity of going outdoors has not proved such a bugbear as I felt that it might be. I do not think we have any attendants to-day that wish the smell of food back in the wards. When the patients are all out in the dining-room, it is a good time to open up the halls for thorough ventilation.

Regarding the matter of diet:—The patients in most asylums, especially chronic asylums, do not receive a very large amount of sweets. I do not believe that you can get a cheaper food than sugar at 4 cents a pound. We use a much larger amount than was mentioned in the table. Another form in which we supply sweets is dates, of which we have used tons during the past year. We get the best dates in the Boston market for $3\frac{1}{2}$ cents per pound. The patients like them very much.

Dr. H. M. Hurd: It may be interesting to state briefly what was intended in this discussion. When the program was arranged, several matters came to my attention which seemed to render it a peculiarly opportune time for considering the subject of asylum dietaries. All are conscious of the fact that in our asylum dietaries there has been much waste, and a tendency to furnish those articles that were the most easily gotten by the cook or furnished by the baker rather than those which have the most food value and are really the best, all things considered, for the patient. I have not been connected with an institution for the insane for six years and practice may have changed, but I remember the time when in most institutions we had bread and butter and meat, and meat and bread and butter with vegetables in the proper season, but the main reliance was upon bread, meat, butter, coffee, tea and similar articles. The diet was not in any respect a scientific one; it was rather something that could be gotten with as little thought as possible three times daily. In many institutions a great wrong was done in supplying patients (many, by the way, inactive in their habits) with a

full quantity of nitrogenous food, often three times daily. During the past two years some very interesting attempts have been made in public institutions to supply the best dietary considered from the point of food values. In the institution at Kankakee, Dr. Gapen employed an expert, for several months, who worked out a dietary such as would be the best for the patient, with a proper variety, without an excess of nitrogenous food and carbo-hydrates, but which gave the proportions of food best suited for the patient although not always absolutely what the patient was in the habit of eating at home. In the great majority of our American families there is a great defect in the method of eating; patients in an institution ought to have better food and a more scientific dietary than they have at home. In the Massachusetts General Hospital and in the McLean Hospital similar efforts are in progress. An expert is endeavoring to find the best hospital dietary which will give the greatest food value at the minimum of expense.

That was one side of the question—the best dietary for the insane and for the sick. We were further impressed with the fact that a great amount of waste of food occurred in institutions for the insane; much of it unavoidable owing to the habits of the patients but some wasted recklessly. I found that Dr. Munson of the Northern Michigan Asylum at Traverse City had introduced a system of supply by which he was able to control the amount of each article of food issued in such a way as to secure a proper supply and at the same time to avoid undue waste.

Finally, a third consideration added to the interest of the subject, viz.: the effort of the New York Commissioners in Lunacy to prescribe a diet; I was interested to know how far the commissioners had succeeded in this undertaking.

I am sorry that the discussion seems to have been on congregate dining-rooms and methods of serving foods and but little has been said as to the best dietary for institutions for the insane.

Dr. C. R. Woodson: I believe a good deal in science but not very much in scientific feeding. I eat what I like and what I want. Dr. Gilman and myself are specimens of that kind of diet. What will agree with me may not agree with you; articles that you may like I may dislike. I believe it is unfair, unjust and impracticable to lay down an article of diet for patients sheltered in the institutions for the insane, and I believe that the Commission in Lunacy for New York has as much right to prescribe for the

outsiders what they shall eat and how much they shall eat, as they have to prescribe certain quantities and certain articles for those in the institutions. I do not care for cheese. Twenty-five per cent of the patients in our institutions will not eat it. Twenty-five per cent will not use milk; twenty-five per cent will not use coffee. Some want coffee and use it without sugar; some want two or three times as much sugar as the average person. It is a good deal as we were raised about such things, and the habit when once established is quite hard to deviate from. I see no good sense in trying to restrict the diet to the list that has been published or given. I believe that vegetables should be used largely,—Irish and sweet potatoes; in fact, all forms of vegetables. Fruits should be used largely. There are six months in the year in which we use raw apples and I would like to see the day when we could give our patients fruit every day in the year the same as we do potatoes; and I have taken steps to bring this about by planting large numbers of fruit trees. We have potatoes twice every day in the year, and I believe that we should have fruits just as frequently, both cooked and raw.

As to meat and milk,—you all know that cases of melancholia when they begin to recover develop great appetites for milk and meat, and when they take these articles of diet freely they gradually improve. Again we have patients who will take a gallon of milk a day and will take nothing else: they would become exhausted on the small quantities of milk recommended by the commission.

I can see no good reason for wanting to take everybody to one place to eat. The very idea of being in the dining-room with a thousand people would be repulsive to me. I do not like to be around where there are so many persons eating. In our institution there are twenty-six wards and sixteen dining-rooms. We take about five of the best wards in each division to a general dining-room. We find it reasonably convenient, and it enables us to do away with some dining-room help, and the food is dispensed perhaps a little easier than if it were carried on elevators to the different parts of the building: but this is about all the advantage that I can see in it. As to the prevention of one class of patients getting what was intended for another and the good workers getting what was not intended for them, I think that it would be easier to occur in the congregate dining-room. We have the feeble, sick, and those needing special diet, in our infirmary building, and the special diet is sent to that building.

Dr. P. M. Wise: In the absence of Dr. Pilgrim I claim the right to represent him in saying a few words in correction, perhaps, of an opinion that I may have created myself in opening this discussion. The State Commission in Lunacy has not prescribed a dietary, absolutely. They create a certain limitation to the purchase of staple articles of diet; they have said thus far shalt thou go and no farther. The serving of that food, its preparation into different kinds of dishes, has not been prescribed; in other words the bill of fare is left to the hospital. The complaint has been that in some articles Dr. Flint has not been sufficiently liberal, but it does not apply to all the hospitals. What Dr. Hurd has said is certainly true, the attention of medical superintendents should be directed to the dietaries and to the supply of food and they should try to put it if possible upon a scientific basis; but I maintain that this should be done by the superintendents themselves. Dr. Flint, in our State, has considered this question before, not only in connection with physiological work but as an expert called by New York city to examine the dietaries of the New York Asylums for the Insane some years ago, and of course comes to the work with some valuable experience. What I particularly want to correct, if that impression exists, is that the dietary itself is not prescribed but that the articles of supplies for the dietary are limited.

Dr. A. B. Richardson: I think that the experiments which have been conducted by Dr. Flint, and those with him, for the purpose of securing the best dietary for the insane, are such as we should encourage. This is a problem that troubles us probably more than any other with which we must contend. Any superintendent who has been many years in charge of an institution knows that the question of dietary is one of the most difficult, not only in the selection of the proper articles of food but also in their preparation. We ought to have some fixed principles to which we could refer in making the estimates. That surely would be sufficient excuse, if excuse is necessary, for such experiments as this. But after having reached some general conclusions, the execution of them surely must be left to individual judgment. Anything like the limitations set by the New York Commission surely will prejudice the best interest of the patient. I do not see how it can be otherwise. They may have selected with the very best judgment and may have reached the proper conclusion as to the best amount of nitrogenous and other forms of food required for certain classes of

people, but to say that this shall be limited to certain articles or that you shall not introduce other articles is going too far. The great problem is to select a dietary which will be best from a physiological standpoint and yet one that will be taken because attractive to the patient. It is not just so many ounces of carbon and so many ounces of nitrogen that we want to introduce into the system; it is putting it in a palatable and attractive form that will induce those people who do not want to take food, to take it and to assimilate it. I find, too, that unless there is some general head of an institution who does determine from day to day, the dietary, in an intelligent way, it will naturally run into a routine; there will be too much repetition. To have a sufficient variety to be attractive and be to the best interest of the patient, it is necessary for this to be outlined from week to week by an intelligent and comprehensive view. Now, if you leave this to subordinates, you will find that you are reverting to just what Dr. Hurd says is the tendency to get the thing that is easiest to procure and prepare, and that means monotony.

As to the question of the manner of serving food, whether in a common dining-hall or separate dining-halls, we ought to keep in mind the purpose of this arrangement. A great deal of it is not connected with dietary at all. It is an architectural arrangement just as other features of the institution are architectural. The same kind of architectural arrangement is not always best for the different classes of insane. I have had almost twenty years' experience with both kinds of dining-halls, and my experience is just this, that for the disturbed and troublesome class of insane, for those requiring regulation in conduct, a general dining-hall is a very decided advantage, and I would not go back to the old method of dining patients of that class for any consideration. There is no question at all about the improvement that can be brought about by bringing that class under intelligent supervision. For the special classes requiring special dietary, a general dining-hall is not the place. It is not desired by convalescent patients. In certain cases I think it is positively detrimental. We should treat our patients individually in this respect just as we try to do in every other respect. Whenever an arrangement is found to be prejudicial it should not be enforced any more than we would insist on a dietary that we find to be injurious. For the general classes of disturbed insane, however, my experience convinces me that bringing the

two sexes together in a common dining-hall is the best arrangement that can be made. The attendants must three times daily have them in proper condition,—clean, properly dressed, and fit for appearance under the supervision of the chief physician. We have 29 wards and we bring 22 of them into one large hall seating 900—both sexes. We have individual objections now and then from the convalescents and more intelligent class, and I can see that that is an objection that ought to be considered, and in the construction of another institution I would not advise having that proportion brought into one dining-hall. With the arrangement that we have as contrasted with the old arrangement of ward dining-rooms, with the uncertain distribution and service, with the defective supervision, with the smell of decomposing grease in the wards, the accumulation of insects and all which accompanies the distribution indirectly to 29 halls from one kitchen, I am very much pleased. We have besides, seven separate dining-halls, two of which are in hospitals, accommodating together, 100 persons. Every patient requiring special dietary is sent to these dining-rooms. Two are in infirmaries, accommodating about 125, where are kept the untidy class, who are not able to go into a general dining-hall, and most of whom are unable to feed themselves and require to be fed by their attendants. Then we have three small dining-rooms, accommodating about 20 patients each, for a few of the acute disturbed class, which serve as adjuncts to the hospitals proper, two for cases of acute mania, and one especially for a class of troublesome chronic epileptics and disturbed cases. I cannot help thinking that the present arrangement is preferable to the 29 dining-halls which we had before.

Dr. Frank C. Hoyt: It occurs to me that the medical profession is a good deal like the pendulum,—it swings one way and then the other,—and I think that perhaps we are in danger of swinging the pendulum of feeding a little too far toward the scientific side. I once heard a story which can be well applied to this discussion. A man, who had been a student of physiology for many years, finally absented himself from his old surroundings and secluded himself for some months. Eventually he invited a number of his friends to meet him at his rooms to dine with him. They went, wondering what he had to offer after his long seclusion. They sat down at a table which was empty except for snowy linen and a large number of boxes in front of the host. He took up the

menu and said: Gentlemen, we will have some bouillon, and then passed around a pill-box from which each took a pill representing the active principle of the bouillon. He went on then to the usual articles of an elaborate bill of fare and for each item of the menu he gave them a pill. The wine was served in small capsules, each representing the active principle of a large drink of champagne or other liquor. After the meal his friends were satisfied that they had partaken of all the necessary elements of food, but they had failed to derive the pleasure which comes from the observation of the food, from the smell of food and more particularly from the taste of food. The New York Commission, in limiting the dietary to so much carbo-hydrates and so much nitrogenous food is apt to forget the necessity for stimulating the appetite by food prepared in a cleanly, pleasant way, with a savory odor and served in an acceptable manner. I think that after all the best test of a man's requirements is that his appetite be satisfied, except in a few cases where there is a tendency to gormandize. When a man says he has enough, that is the test for that particular patient. You may prescribe a scientific dietary, but I never saw a scientific stomach. When we dine at a hotel, we all take what the *chef* sends in, selecting, perhaps, the most indigestible articles on the list. Our insane patients, taking out, perhaps, a certain class of special diet patients, should be served very much as a hotel boarder or a citizen at his private table. They should be given what will sustain their bodies and strength and at the same time please their appetites most; and that is what we do in Iowa. I believe that the diet tables prepared under the supervision of the New York Lunacy Commission have been misunderstood. I do not think they intend to restrict each patient to certain amounts of each article. The man who does not like milk will not take it, consequently the man who likes two glasses will get his glass. The man who does not like pork will not eat it and the man who does like it will get his share; so there will be a general evening up. I have compared our diet table with that of Dr. Flint and we run pretty close to it; perhaps a little above it. If I may be pardoned, I would like to speak a little about congregate dining-rooms. I have had experience with both; and I stood once as the champion of congregate dining-room and I am ashamed to admit it now. We have in our institution a congregate dining-room and it is not satisfactory. Our patients do not

like to go to that dining-room. I think it is just as inviting and the food as well served as in any of the asylums in the East that I have visited. I saw in one institution the patients in a dining-room with a capacity of 900. They marched in in military style, and one patient took a plate of beans and overturned it, and another took a loaf of bread and stuffed it in his pocket. How Dr. Richardson can take his violent patients into a congregate hall and teach them discipline is more than I can understand. The convalescents, are, in my opinion, better adapted to the congregate dining-room and can be more easily forced to undergo that family arrangement (?) of 900 people dining in one hall. It seems to me that the attendant who has daily control of his patient is the man who should stand by him when he gets his meals and see that he eats and receives the proper amount of nourishment. I know that the complaints that come to me from patients that they do not get enough to eat are from those who eat in the general dining-room. I have 250 patients fed in the general dining-room where the waiting is done by serving girls, while the attendants devote their time during the meal, exclusively to their patients. The attendants in the wards have only 25 or 30 to see to and they do it better than it is done in the large hall.

Dr. Rohé: How does the complaint come to you?

Dr. Hoyt: Through the supervisors, attendants and physicians who are present at each meal.

I have been present at a great many meetings of this Association and have often heard of the necessity of individualizing our patients. I fail to see how patients can be as well individualized in lumps of 900 as in blocks of five or twenty.

Dr. Richardson: Who act as waiters?

Dr. Hoyt: I employ waitresses who serve the tables just as is done in a hotel, while the attendants are engaged in attending to the wants of the patients, feeding those who do not eat readily, correcting disorderly conduct and seeing that all are properly served. In the dining-room for 125 patients we have two waitresses and four male attendants beside the supervisor and physician.

Dr. Richardson: That explains a good deal. The attendants ought to act as waiters in the dining-hall as well as in the ward. If you introduce trained waiters, who do not know the peculiarities of the individual patients, it will not be satisfactory.

What new factor is introduced that necessitates the employment of trained waiters in one room rather than in another I fail to see.

Dr. GILMAN: Just one thought, suggested by the remark of Dr. Richardson in reference to the service of food from the kitchen to the dining-room. With us we have a kitchen manager, a women who has been educated in cooking all of the different articles in the dietary; but she is not expected to spend her whole time in cooking, but to know when the food is perfectly cooked and properly served. She is a woman of executive ability and also has a sufficient number of good cooks to do the work under her direction. We find that kind of service is about as near perfection as it seems possible to have it.

ASYLUM DIETARIES.

BY J. D. MUNSON, M. D.,
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In the business management of a public hospital for the insane one of the principal objects to be obtained is to keep the cost of maintenance at the lowest price compatible with the health and welfare of the hospital population. The outlay for food materials forms a good percentage of the current expenses, and it is of supreme importance for the cure and comfort of patients that foods, in quality and in mode of cooking, be of high order, hence the necessity for systemization of everything pertaining to the food supplied to the hospital.

The following remarks have been prompted simply by a desire to make known our experience in establishing a more scientific basis on which to furnish foods to our people, and no especial attempt has been made to compare the dietaries of asylums. It is true, however, but few dietary studies have been made in this country, and, apart from Miss S. E. Wentworth's efforts at Kankakee, none, so far as we know, have been attempted in connection with hospitals for the insane.

It is well known that man in health, and with moderate labor, requires to repair body waste, from 118 grammes protein, 50 grammes fat, 500 grammes carbohydrates (Voit), to protein, 135 grammes; fat, 135 grammes, and carbohydrates, 450 grammes (Atwater). At the Kankakee Hospital the average amount of foodstuffs consumed per person per day, for a period of three months, was, protein, 111 grammes; fat, 108 grammes, and carbohydrates, 429 grammes, and at the Northern Michigan Asylum, for a period of three months, protein, 114 grammes; fat, 112 grammes, and carbohydrates, 460 grammes. The amount of these foodstuffs consumed will depend upon sex, age, condition of health, and upon the amount of energy expended by the individual in the performance of daily duties. During very severe labor the amount of these constituents may reach as high as, proteids, 200 grammes, fat, 130 grammes, and carbohydrates, 550 grammes, or a potential energy of over 5,000 calories. The United States Army ration

gives a potential energy of 3,851 calories, and that of the United States Navy, 4,998 calories. At the Kankakee Hospital the average was 3,175 calories per person per day, and at the Northern Michigan Asylum, 3,406. "The potential energy of food is estimated in calories. The calorie is the heat which would raise a kilogram of water one degree centigrade (or one pound of water about four degrees Fahrenheit). A pound of protein, or a pound of carbohydrates, is assumed to yield 1,845, and a pound of fat 4,185, calories. The figures for potential energy are calculated for each food material by multiplying the number of grammes of protein and of carbohydrates in one pound (one pound equals 453.6 grammes) by 1,845, and the number of grammes of fat by 4,185, and taking the sum of these three products as the number of calories of potential energy in a pound of the material." (See Nat. Med. Dict., p. xxxv.) The index of protein and carbohydrates are there given at 4.1, and fat at 9.3, but we preferred the index given at Kankakee for the sake of uniformity. The dietary of the insane must be generous, not less than 110 protein, 110 fat, and 450 grammes of carbohydrates per patient per day. A difficulty in fixing a dietary on the basis of the foodstuffs it contains arises from the fact that the percentage of these elements varies largely in meat and vegetable foods, according to quality, and whether in a fresh or dried state. In meats they differ considerably in different parts of the same animal. Moreover, in the fat of pork, fish, and eggs, etc., a percentage is indigestible, and must be deducted from its value as food. Therefore it is better in estimating the amount of foodstuffs in a given dietary, either animal or vegetable, to compute from a minimum rather than from a maximum average, as this insures to the consumer the full average amount of nutritive material. It would, for example, be faulty to estimate a whole beef on the amount of proteids in round steak (23 per cent), and a ration computed on such percentage would be deficient in protein, provided all portions of the animal were used. This may be corrected by adding to the ration, but it is better to assume a general average, which we have placed at 17 per cent.

A physiological ration consists of such a combination of food material as will insure on an average to a person per day the amount of proteid, fat, and carbohydrates above mentioned. The uses of these different classes of nutrients in the economy are, according to Atwater, "protein forms tissue (muscle, tendon, etc.,

fat), and serves as fuel. Fat forms fatty tissue (not muscle, etc.,) and serves as fuel. Carbohydrates are transformed into fat and serve as fuel. In being themselves burned to yield energy, the nutrients protect each other from being consumed. The protein and fat of body tissue are used like those of food. An important use of the carbohydrates and fats is to protect protein (muscle, etc.,) from consumption (Storrs Agr.Exper. Station, 1892–93), and "in being consumed in the body as fuel to furnish heat and muscular energy the nutrients appear to replace one another in proportion to their potential energy." (Nat. Med. Dict.)

A ration containing the proper proportions of nutrients can be prepared without meats, but not without more or less animal food, and be healthful, but as Vaughan points out, "some meat, while not necessary to health, does undoubtedly insure bodily vigor."

We followed, in our first efforts to improve the dietary at the Northern Michigan Asylum, the United States Army ration. This ration was found to be rich in meats, coffee, and bread for any but patients at hard labor, and deficient in fruits, milk, butter, cheese, and in a variety of vegetables. By reducing the amount of meat, bread, and coffee, and adding vegetables, butter, milk, etc., excellent dietaries were provided, the patients maintained in a good state of health, and the cost of food kept within reasonable limits. Later we profited by the ration formulated by Prof. Austin Flint for the New York State Commission in Lunacy, which is as follows:

Meats with bone, including salted meats, fresh and salted fish, and poultry	12 oz.
Flour, to be used in making bread and in cooking, may in part be substituted by corn meal and macaroni	16 oz.
Potatoes	8 oz
Milk	8 oz.
Two eggs	4 oz.
Sugar	2 oz.
Butter	2 oz.
Cheese	2 oz.
Rice, hominy, and oatmeal	1½ oz.
Beans or peas (dried)	1½ oz.
Coffee (green)	1 oz.
Tea (black)	⅛ oz.

Prof. Flint suggests that for men 5 per cent may be added to this ration, and for women 5 per cent may be deducted, and for workers 25 per cent may be added to the ration of meat, flour, and

potatoes. The ration in use at the Northern Michigan Asylum does not differ greatly from this, and consists of

Butter	1.61 oz.
Cheese	.50 oz.
Eggs	.80 oz.
Flour used in baking bread, cake, and pastry, including vermicelli, crackers, macaroni, corn meal, and buckwheat	15. oz.
Potatoes	12. oz.
Meats	10. oz.
Milk	16.10 oz.
Rice, oatmeal, hominy, and pearled barley	1.20 oz.
Beans and peas (dried)	.50 oz.
Coffee (roasted)	.35 oz.
Tea (green)	.16 oz.
Dried fruits	.90 oz.
Fruits, fresh and canned	.90 oz.
Vegetables, fresh and canned	6. oz.
Sugar, including molasses	2.82 oz.
Fat	.14 oz.

This ration costs about 14 cents per patient per day in our market. Meats are never excluded from the dietaries and all fruits are used freely during their season. Fresh vegetables are supplied, in part, during the winter months from the green-houses, particularly radishes, lettuce, and rhubarb, all of which contain salts that closely resemble those found in the blood, and for this reason are especially beneficial to patients.

A food ration, like those above given, is simply a concise statement of the requirements of the organism, "hence its application is to average conditions. No single fixed standard can be laid down for all conditions. It must be used in connection with intelligent observation." (E. W. Allen, Agr. Bulletin, No. 22.) Experience among the insane teaches that there are wide differences in the amount of foodstuffs consumed, owing to idiosyncracy, condition of health, or other causes. Some eat chiefly meats (protein), while others are quite opposite in their habits of eating. Hence the very important necessity of affording as wide a variety of foods as possible each day, and of changing the dietary as frequently as possible. Digestive derangements are, without doubt, much obviated in this way. There are many conditions which influence the nutritive value of a food, and Doctor Vaughan says: "In order for this to be high, its constituents must not only be rich in foodstuffs,

but they must be digestible. By improving the digestion the appearance, odor and taste of a food increases its nutritive value. It is also quite essential that the volume of food taken should be large enough to satisfy the appetite, and still not so great as to prove burdensome." (Healthy Homes and Foods for the Working People.)

In issuing supplies on a scientific basis, where the strictest economy must be practiced, it is extremely important to have a perfect system of requisitions. Without such system the superintendent, or other officer charged with this duty, is at a loss to know what foods have been paid out from day to day, their cost, or their aggregate nutritive value. As the object aimed at is to adapt the dietary to the needs of the hospital population and at the lowest reasonable cost, and to provide as many food materials as possible, a requisition and record which show at a glance the foods requested and foods previously issued, their cost, etc., become indispensable. The requisition in use at the Northern Michigan Asylum is a printed list of all foods used. It would doubtless add to the value of this requisition if columns were supplied for the percentage value of protein, fat, and carbohydrates of each food. It is well to have a table showing the nutritive value of each food; but as such a table is soon memorized the need of its being printed in the requisition blanks is scarcely felt in practice. The requisitions, after approval, are sent to the store and each article is charged to the department to which it is issued in a journal. This journal accompanies the unsigned requisition to the superintendent, and it requires but a moment of time to correct the requisitions and to determine the kinds and quantities of food materials for the day. An important advantage arising from this simple plan is the aid which it affords in varying the food supplies. By having in view what has been issued to each department on previous days repetition is avoided, and variety introduced by deducting from one or several articles called for an equivalent in value of other articles, or such food material may be added as may be required. This equalizes the quantity, cost, and nutritive value of the food material to be used during that particular day.

Such is the outline of our system. It may seem involved and burdensome in its details, but it rarely requires more than a few minutes for its arrangement, and affords the satisfaction which always results from an accurate performance of duty.

Table menus, however, can not be prepared from the most scien-

tific ration unless the materials of which it is formed are of the highest quality. Doubtless it is possible, in purchasing food material from the lowest bidder, to secure proper quality; but our experience has been that high quality with low contract price is incompatible. There are a few foods which should have the most careful selection. The first in importance is beef. All beef should be carefully slaughtered and free from bruises, blood, and filth. We have used all grades of beef, and have always regretted, for the sake of our patients and the interest of true economy, any departure from the best grade.

Butter is a very important food. As a rule, store butter is unfit for use. It is essential to know the conditions under which it has been made and the manner in which it has been kept. "It is liable to infection from uncleanliness or disease, as well as from vitiation of a foul atmosphere. Just as milk may be infected when taken from a tuberculous or otherwise diseased cow, so is butter made from such milk." (Dr. Mary Green, Hotel World, No. 21.) Butter, besides being a great luxury, is of great value in the treatment of certain debilitated states. It furnishes a large percentage of the fat in the dietaries; hence the urgency of its careful selection. What has been said of butter applies as well to milk. Milk is an indispensable food for all patients. If it is purchased, the condition of the cows producing the same should be a matter of careful inquiry. They should be free from disease and well housed and fed. Directions for the care and transportation of the milk should be enforced. This is important, because milk that has stood in cans a few hours in a bad atmosphere, or if transported a considerable distance exposed to the rays of the sun, is not only unhealthful, but may be poisonous from products of fermentation.

Taking it for granted that the food supplies are of the best quality and that they have been issued so as to contain the several constituents of a physiological dietary, table menus must be so prepared that they may be served in the most appetizing manner to the hospital population. In this the services of a chef are indispensable. The chef prepares the "menus," and by his skill in cookery prepares more tempting and digestible "dishes" than could a person deficient in such skill. Until a comparatively short time ago the chief cook at the Northern Michigan Asylum was not paid more than $50 or $60 a month, and we are quite certain that we never had value received for our money, either in the quality of the cook-

ing or in the saving of supplies. Since the employment of a chef, in addition to a large money-saving, the food is prepared in a much more delicate manner, and is much better fitted to the needs of the patients. It is almost universally true that when patients are received they are in a reduced physical condition, and it has been found that the health of such patients rapidly improves, and that without so much prescribed or "extra diet" as was formerly necessary. In my judgment there is nothing that adds so much to the comfort of patients, nothing that tends to relieve irritability and fault-finding, as generous and skilfully prepared food. Our experience with an "accomplished cook" quite agrees with Prof. Austin Flint's at Bellevue Hospital. He says: "An accomplished professional cook, at a liberal salary, was put in charge of the kitchens at Bellevue Hospital. As a result of this, not only did the cook save to the institution the sum of his salary, but the cost of maintenance of the patients per capita was materially reduced." (Rep. St. Com. in Lunacy of N. Y.)

The following table shows the food materials issued, their cost and total value in protein, fat, and carbohydrates for the quarter ending April 30, 1895.

Article.	Amount in Pounds.	Total Cost.	Protein.	Fats.	Carbohydrates.
Apples	4,982	$ 107 49	149.46	19.92	747.30
Apples, evaporated.	2,254	176 54	90.16	.00	1,127.00
Barley, pearled	46	1 17	5.06	.69	31.74
Butter	10,469	2,113 76	.00	8,898.65	.00
Beans, dried	3,033	99 96	697.59	60.66	1,789.47
Buckwheat flour	402	4 90	28.14	6.03	305.52
Cheese	2,535.75	289 65	735.36	786.08	38.03
Cabbage	111,553	135 92	173.29	3.46	531.31
Crackers	4,363	187 56	436.30	392.67	3,010.47
Beef	41,210	2,626 26	6,181.50	7,005.70	.00
Bacon	61	6 19	4.88	42 [illegible]	.00
Fish, fresh	2,442	122 10	244.20	.73	.00
Fish, cod	935	75 31	149.60	.37	.00
Corn meal	1,383	18 74	127.23	52.55	978.39
Corn starch	222	7 75	1.44	.00	188.70
Cranberries	18	28	.18	.12	.12
Currants, dried	232	15 33	9.28	.00	116.00
Ham	380	35 72	64.60	148.20	.00
Liver	2,208	86 92	441.60	119.23	77.28
Apricots, canned	37	2 11	1.11	.00	4.44
Beans, canned	54	2 30	12.42	1.08	31.86
Bl'kberries, canned	43	2 25	1.29	.00	5.46
Corn, canned	183	4 52	5.49	2.19	40.26
Peaches, canned	307	15 61	9.21	.00	36.84
Pears, canned	124	7 74	3.72	.00	14.88
Peas, canned	175	7 48	7.17	.87	20.12

Article.	Amount in Pounds.	Total Cost.	Protein.	Fats.	Carbohydrates.
Pineapples, canned.	14	$ 1 12	.07	.04	1.40
Pumpkin, canned..	27	81	.29	.13	2.70
Tomatoes, canned..	903	31 25	9.03	1.80	29.79
Mutton.....	3,072	168 98	491.52	860.16	.00
Pork, fresh.....	5,938	339 40	890.70	1,009.46	.00
Poultry.....	364	48 13	87.36	18.20	.00
Sausage, pork.....	2,605	179 32	338.65	1,094.10	.00
Sausage, Frankfort	1,054	67 84	158.10	158.10	,00
Sausage, Bologna..	1,958	90 83	352.44	313.28	.00
Veal.....	539	37 73	80.85	75.46	.00
Beets.....	4,931	34 25	54.24	4.93	221.89
Carrots.....	3,726	27 40	48.43	7.45	223.56
Eggs.....	5,322	521 02	665.25	638.64	.00
Hominy.....	1,728	34 56	155.52	86.40	1,330.56
Lettuce.....	1,660	166 00	24.90	8.30	61.42
Jelly.....	240	5 16	.72	.96	38.40
Onions.....	2,754	30 90	35.80	5.50	165.24
Lard.....	926	78 70	.00	916.74	.00
Potatoes.....	82,685	679 00	1,478.33	165.37	15,710.15
Macaroni.....	299	25 14	32.89	3.88	209.30
Parsnips.....	4,184	37 05	54.39	8.36	251.04
Molasses.....	2,020	77 67	.00	.00	1,474.60
Bananas.....	16	1 00	.22	.22	4.76
Oranges.....	72	5 13	.72	.64	5.97
Pickles.....	429	8 40	3.43	.85	10.72
Milk.....	113,943	2,278 86	3,988.00	4,215.89	5,355.32
Raisins.....	125	8 65	6.00	.00	62.50
Radishes.....	518	103 60	5.18	1.03	31.08
Oatmeal.....	3,656	95 23	475.28	255.92	2,559.20
Rice.....	2,403	114 26	168.21	.00	1,898.37
Peas, split.....	400	10 99	92.00	8.00	212.00
Salsify,.....	131	6 55	1.96	.26	13.10
Sugar, granulated..	15,433	675 78	.00	.00	15.093.47
Sugar, brown.....	2,549	81 10	.00	.00	1,911,75
Turnips.....	8,352	44 75	85.56	13.16	394.92
Prunes.....	3,395	134 49	135.80	.00	1,697.50
Vermicelli	135	16 87	14.85	2.02	93.15
Flour.....	87,325	1,157 00	9,605.75	309.87	60,254.25
Tea, coffee, spices, salt, vinegar, etc..	.....	965 49	.....	.....	.....
Total.....	.....	$14,543 97	29,122.72	28,727.02	79,445.04

Average daily cost, 14.03 cents.

Following the form used at Kankakee, the food results obtained for the quarter ending April 30, 1895, are as follows:

		Pounds protein	Pounds fat.	Pounds carbohydrates.
No. of persons	1,165			
No. of days	89			
Product	103,685	29,122.72	28,727.02	118,413.30
Average daily supply per person		.2808	.2770	1.1420
10 per cent deducted for waste		.0281	.0277	.1142
Average amount consumed per person per day		.2527 114 gram.	.2493 112 gram.	1.0278 460 gram.

Protein	.2527	lbs.	
Carbohydrates	1.0278	"	
	1.2805	"	×1845=2362.52
Fat	.2493	"	×4185=1043.32

3405.84 colories per person per day.

In conclusion I may say that the percentages of food elements were largely taken from the tables of Wood, Gibson, Atwater, Vaughan, and the Kankakee Hospital. From several years' experience I feel that the amount of foods above given could not be materially reduced without the health of the household suffering. Unquestionably, however, the food materials could be much more varied. The table menus are submitted daily for approval. The dining-rooms are tastefully furnished, and everything in connection with the tables is ordered for the comfort of the patients and to obviate objectionable features from carelessness or untidiness in the service.

May 25, 1895.

PELVIC DISEASE IN WOMEN, AND INSANITY.

BY GEORGE H. ROHÉ, M. D.,
Superintendent Maryland Hospital for the Insane, Cantonsville, Md.

At the meeting of this Association in 1892, I reported, briefly, the results of my experience in operating upon a small number of insane women suffering at the same time from disease of the pelvis organs. This report was afterwards supplemented by more extended and specialized papers read before the American Medical Association and the American Association of Obstetricians and Gynecologists. The work has attracted some attention, and has given occasion for favorable comment and unfavorable criticism. In one instance, a laudable endeavor at imitation was rudely suppressed by the official interference of a State Commission in Lunacy whose *obiter dictum*, that operations upon the insane were "brutal and inhuman, and not excusable on any reasonable ground," as well as "illegal and unjustifiable," received the indorsement of some of the most distinguished members of this Association.

Whether the opposition to the work referred to, can be justified upon medical and surgical grounds, I shall examine later on. For the moment, I desire to invite your attention to the legal aspect of the matter, for if the assertion of the Pennsylvania Committee in Lunacy, that a surgical operation upon a lunatic is in all cases "illegal and unjustifiable," is correct, the sooner physicians and surgeons in attendance upon the insane know it, the better for themselves, although it might not be to the advantage of their patients.

I have devoted a good deal of time and attention to the investigation of this point. In the first place, it was desirable to ascertain what, if any, specific legislation bearing upon this matter existed. My own reading, as well as the experience of several eminent lawyers consulted, failed to disclose any statutory enactment governing the authority of a medical attendant to decide upon the necessity of a surgical operation upon a lunatic.

A priori, a surgeon acting in good faith, and for the benefit of his patient, might therefore perform an operation upon a lunatic without committing specifically, an act contrary to law. Of course

it is a general principle of law, and this has found expression in specific enactments, that no one can *in invitum* be even touched by another. And this is held to prohibit the performance of a surgical operation upon a person without his consent. Decisions declaring an operation illegal if the consent of the patient has not previously been obtained are upon record. On the other hand, courts have generally held that this principle is not applicable where it could be shown that the operation was performed for the benefit of the patient.

So far as this legal principle has a bearing upon the performance of surgical operations upon insane persons, it is manifestly confined to the question of what constitutes valid consent. It has been held that a lunatic can not give such consent, and that no other person can give consent for the lunatic. On the other hand, the opinion is held that under certain circumstances, the insane individual is competent to consent to a surgical operation, and that the power to do so may likewise be delegated by a court of equity to the committee of the lunatic. The latter opinion is manifestly the more reasonable one.

The following propositions may be accepted as based upon the principles of law and judicial decisions governing the question of consent by a lunatic to the performance of a surgical operation:

1. The act of a lunatic, during a sane interval, has in law the validity of a sane person; therefore a lunatic, in a sane or lucid interval, is as competent to consent to a surgical operation of any kind as is any person.

2. The State, acting through courts of equity, is the guardian of all insane persons. The equity court appoints a committee as its agent for the discharge of this duty. Such committee is the legal guardian of the person and has the power to consent to such measures as may be for the lunatic's benefit. The committee of a lunatic has, therefore, the power to give consent for the performance of an operation upon the lunatic, if it should be for the latter's benefit.

3. The lunatic may, even if there is no absolutely lucid interval, be competent to give consent to the performance of an operation, if he understands its object and consequences. It is the central principle of the modern law of insanity that the validity of any act of a lunatic depends upon his capacity to perform the particular act in question. Thus it has been decided that a lunatic is capable

of being a witness, although not capable of entering into a contract. The law would probably not exact so high a capacity in a lunatic to consent to a surgical operation as it would to enter into a contract. In these cases, however, the physician or surgeon must assume the responsibility of determining whether the lunatic has that degree of capacity requisite to consent. Manifestly, the surgeon is here placed in a delicate position, but one from which, in emergencies, he has no right to shrink. In all cases of doubt, where practicable, the authority of the equity court or of the properly appointed committee should be obtained. The law therefore, so far as it is applicable here, indicates the nature and sources of consent to a surgical operation in an insane person. The further question whether certain methods of treatment are justified—in other words, whether they are necessary or are for the benefit of the insane person remains to be considered.

Every one will agree that any person suffering from a local disease should receive treatment for that disease, irrespective of whether the person is sane or insane. Thus patients with acute infectious or inflammatory disease, disorders of digestion, affections of the heart, lungs, kidneys, surgical diseases, etc., would all receive appropriate treatment for the local morbid conditiou in all properly conducted insane hospitals. It has become customary in many institutions for the insane, to subject all patients on admission, or soon thereafter, to a physical examination. In this way it has been discovered that a considerable proportion of insane persons suffer from gastro-intestinal disorders, tuberculosis, heart affections, kidney diseases, etc. There seems however, still a widespread prejudice against examining the pelvic organs of insane women to determine the presence or absence of local diseases in the genital organs and pelvic viscera. The failure to make such examination, systematically, is doubtless responsible for the opinion current among asylum physicians that pelvic disease is rare among female lunatics. I have been told by asylum physicians in this country and abroad, that pelvic disease must be rare among their female patients, because so few of these complain of symptoms referable to the genital sphere. Might I ask, how many cases of cardiac disease would be discovered if the physician waited for the patients to complain of disordered action of the heart, or of the kidneys? Has it not occurred to some of those here present to find an over-distended bladder in a male patient when no complaint

of local pain or discomfort had been made? I venture to say that systematic examination of the pelvic organs by one familiar with modern methods of examination would disclose a large proportion of pelvic disease among female lunatics. My own examination in the Maryland Hospital have shown that fully 60 per cent of the women admitted have some lesion of the genital organs or pelvic viscera. Many of these are of so slight a character as to require no treatment, but others can only be relieved by some form of operative interference. Thus, of the affections I have frequently found, are rupture of the perineum, abscesses, cysts of the vulvo-vaginal gland, lacerated cervix uteri, catarrhal and purulent endometritis (usually following puerperal septic conditions), cancer of the uterus, fibroid tumors of the uterus, salpingitis and ovaritis, pyosalpinx and ovarian abscess, cysts of the ovaries and of the broad ligament, and pelvic peritonitis. Defective development of the external genitals has often been found in that class rather vaguely termed "degenerates." In a certain proportion of cases the diagnosis of masturbation can also be made with certainty by the physical examination.

The objection that a vaginal examination directs the attention of the insane patient particularly to the sexual organs, and in this way has a bad moral effect, has, according to my observation, no validity. Most patients can readily be examined without an anæsthetic, although in some the examination can be more satisfactorily made under anæsthesia. Only once in upward of one hundred examinations did the vaginal examination produce an orgasm. This patient was suspected of masturbation, although she had never been detected in the act. The examination disclosed the elongated nymphæ so characteristic of the constant practice of this vice.

If it is true that pelvic disease is prevalent among insane women (an assertion easily confirmed or refuted by further observation) the question arises, Has the pelvic disease any etiological relation to the mental disturbance? Upon this point, much more extended clinical observation is desirable. I incline to the belief that there is such an etiological relation. But my experience is as yet too limited to establish this opinion as an axiom. The personal equation which governs every observer's work has not yet been determined. Others with the same material might arrive at different conclusions. But no one has a right to deny the accuracy of my observations, or the validity of my inferences, unless upon a sim-

ilar basis of personal experience. I refuse to recognize the authority of any critic "up a tree." He must come down from his perch and meet facts with facts. Arguments based upon prejudices will not answer.

I have expressed my belief in the causative relation of pelvic disease to insanity in women. The mere coëxistence of pelvic disease and insanity in women does not establish such a relationship. The cure of the mental disturbance by removing the physical disease, would generally be accepted as a sufficient test. Unfortunately, a cure of the mental derangement does not always follow removal of the local disease. A little reflection will show that there are abundant reasons for this. The brain organization may have already been so much deteriorated by the persistent reflex irritation from the local disease, that local *restitutio in integrum* fails to restore the normal functioning power of the cerebrum. The habit of morbid action of the brain may have been so strongly impressed upon that organ that the original cause of the derangement is no longer necessary to keep it up.

As a contribution to the clinical material upon which eventually any satisfactory conclusion must rest, I shall report in brief my experience during the past four years in the Maryland Hospital for the Insane.

One hundred women were examined, in forty of whom the local lesions found were believed to justify operation. In thirty of these, abdominal section with removal of the uterine appendages, was practiced. In two of these, a subsequent abdominal section was done for the relief of distressing local symptoms. In one, peritoneal adhesions were separated, and in the other a small hæmatoma was found in the stump of one of the tubes; probably some ovarian tissue had escaped removal at the first operation. The symptoms were pain, metrorrhagia and uterine catarrh. In three of the thirty cases, a secondary vaginal hysterectomy was done. Two of these had already been subjected to a second laparotomy. One of these was finally cured, both of the local symptoms and the mental disturbance. Two cases were subjected to primary vaginal total extirpation of uterus and appendages. In two, repair of lacerated cervix was done. In six, the guardians of the patients would not consent to operation. Of the thirty abdominal sections, there were cured physically and mentally, ten; decidedly improved, four; unimproved, thirteen; died, three.

Of the three secondary vaginal hysterectomies, which are included among the thirteen unimproved after removal of the appendages, one was cured and two remain as before. Of the two primary total extirpations, one was cured and the other so much improved as to give strong hope of ultimate mental recovery. The two trachelorrhaphies both recovered, mentally and physically.

The final results of the operations at present are therefore: cured (physically and mentally), fourteen; improved, five; unimproved, twelve; died, three. Total, thirty-four.

I have frequently been asked, In what class of cases is an operation indicated? My answer always has been, Where there is local disease discoverable on examination. The mental symptoms, themselves, are no guide. Mania, melancholia, confusional insanity, hystero-epilepsy have all been cured. The same forms of mental disturbance have sometimes not been benefited. In consecutive dementia and in epilepsy, where brain deterioration has already occurred, no improvement can be looked for in the psychic symptoms. I believe that in some cases of epilepsy, where there is pelvic irritation, an early removal of the source of the irritation would be of benefit to the patient. In all cases, however, where local disease exists, appropriate treatment is indicated, irrespective of the mental condition. Thus, all three of the cases who died were of dementia, two consecutive to epilepsy. In all of these there was abundant local disease to demand interference. In one, there were large pus tubes and ovarian abscesses matting all the pelvic organs into a mass infiltrated with pus. In another, there was an intra-ligamentous cyst as large as an orange. The third case was an especially interesting one. The patient was a young colored woman suffering from a second attack of insanity, the first outbreak having occurred in 1884. No accurate history of her symptoms could be obtained. When admitted in 1895, she was in a state of dementia. On physical examination she was found to have a large tumor in the abdomen, which simulated an ovarian cyst, although no definite diagnosis was made. On opening the abdomen a large fibroid tumor was discovered, fed by a multitude of large blood vessels from the omentum. Some of these vessels were as large as a finger, and one was so large that in its collapsed state it resembled somewhat a section of small intestine. The tumor was not connected with the uterus or any of the other solid organs of the abdomen or pelvis.

It was adherent over a space, as large as the palm of the hand, to the abdominal wall on the left side, and suspended from the omentum through the blood vessels penetrating it from the latter structure. The vessels were so friable that catch forceps would tear out as soon as applied. The hemorrhage from the tumor, (which was so soft that the finger penetrated it with ease), and from the fragile blood vessels was terrific. As the bleeding could not be arrested with the tumor *in situ*, the incision was rapidly enlarged, the adhesions between the growth and the abdominal wall separated with the hand, the tumor turned out of the belly and the vessels stripped off. The latter were then tied in mass ligatures in three sections, including as much omental tissue as possible, to prevent the ligatures cutting through the friable vessel walls. Three smaller fibroids were then enucleated from the uterus, and the appendages removed. The abdomen was thoroughly flushed out with hot water, two gauze drains inserted, the wound closed with silkworm-gut sutures and the patient put to bed.

The shock and loss of blood were, however, so great that in spite of the subcutaneous infusion of saline solution the patient died an hour and a quarter after removal from the table. The tumor weighed nine and a half pounds and had probably been a pediculated uterine fibroid which finally became separated from the uterus. One of the smaller growths removed had also a very small pedicle and would probably in time, had the patient lived, have become separated from its point of attachment.

Twelve of the recovered cases have been discharged and all but one are alive and, so far as I have been able to ascertain, remain in physical and mental health. Two are still under observation in the hospital.

Of those noted as unimproved after operation, two have since died of tuberculosis, that fatal scourge of all institutions for the defective classes. In no case has the operation seemed to make the patient worse.

The clinical variety of mental disturbance in the recovered cases was: puerperal insanity (mania), four; melancholia, six; mania, three; hystero-epilepsy, one. Total, fourteen.

In the cases in which complete recovery did not follow the operative measures there were of: melancholia, two; mania, five; puerperal insanity (mania), one; dementia (including four epilepsy),

seven (three deaths); paranoia, two; hysterical insanity, two; adolescent insanity, one. Total, twenty.

The number of my cases is too small to allow one to draw any conclusions, but if anything of practical value can be deduced from them it is that puerperal insanity, melancholia and simple mania offer the best chances of cure from the proper treatment of local lesions in the pelvis. Of course it may be said that these forms of mental disorder are just those which yield in the majority of cases to the usual methods of management of insanity. In seven of the cases, however, the insanity had lasted over eighteen months before any treatment directed to the local lesion had been instituted. In a case of hystero-epilepsy, the patient had been in the hospital seven years, and one of the cases of puerperal insanity had been four and a half years insane. I am convinced that earlier operation in appropriate cases would very largely increase the proportion of recoveries.

I do not claim that these results prove that insanity is caused by pelvic disease, but they do show that judicious treatment directed to the physical disease benefits the patient's mental condition. If that is an object to be desired, then I ask for these results, and for the views I have ventured to express, unprejudiced consideration.

DISCUSSION.

Dr. Daniel Clark: The paper of Dr. Rohé's is excellent and discusses living questions, which are of practical importance. It is a serious matter to members of the profession when law steps in between the doctor and his patient in respect to methods of treatment when a statute virtually vetoes what a physician may think it best to do in the best interest of the patient. The members of the profession where such legislation prevails or is threatened should unanimously oppose its existence. The public are protected by such law as exists in all communities against any such physicians as are guilty of malpractice.

In the paper is a statement which surprised me, and that is, in the author's experience, at least 60 per cent of females afflicted with insanity had pelvic diseases which were factors as causation of mental disorder. My clinical observation would lead me to believe that not one-tenth of that percentage is thus afflicted and that even in one-sixth, a large number of the females were so little afflicted that no etiological connection between insanity and these

diseased conditions could be positively asserted. The co-existence of diseases is one thing and their relation to one another as cause and effect is quite another. Local diseases are often contemporaneous without being necessarily related to one another. Herein comes fallacies in tabulating cases and recoveries as consequent upon treatment of operations when such is not the case.

We know it to be a fact that a large number afflicted with uterine or ovarian disease—organic or functional—recover from insanity, although the abnormal conditions may not be ameliorated.

Such diseases existed long before insanity came on and after recovery had taken place. Many cases of recorded recovery are only those of intermissions in periodic insanity or those who have got well from eccentric shock or septic excitation not because of but in spite of all interference, operation or otherwise. It is impossible to procure then absolute data as to the benefits or otherwise of treatment or operations on the pelvic organs, except by collating a large number of cases and comparing them with an equal number of cases not thus treated under similar conditions.

Another point suggests itself to me by the reading of the paper, and that is the tendency nowadays of gynecology to give undue prominence to minor uterine diseases. I am sure that an importance is attached to many such conditions as factors in producing insanity which is not warranted. The tendency to focalize the sane female mind upon uterine conditions of minor importance by physicians who are afflicted themselves with a sort of speculomania is bad practice; it is doubly so when such a bodily invasion is made upon the insane female with delusions. The tendency now so prevalent to examine females, unmarried and married, because of some slight sign or symptom in or about the generative organs has a moral connected with this practice which may finally lead to what we should be able to resist on ethical as well as rational grounds, namely, legislative interference.

Eminent gynecologists are wisely raising a warning in the right direction of conservative treatment.

Dr. Richardson: I have only words of commendation for Dr. Rohé's paper. Dr. Rohé deserves credit for the courage that he has manifested in undertaking experimentations in this direction, which a good many of the rest of us hesitate to undertake. A new experimenter in any field, if the Doctor can be considered new where a good many others have already preceded, must be

subject to considerable criticism. The Doctor doubtless is receiving his share, but I must say that the tone of his paper is one that I can endorse heartily and entirely. The Doctor qualifies, of course, the question of recoveries. That is a minor matter as to whether a patient technically can be considered recovered or so much improved as to go out into the world and undertake the duties of life again; it makes but little difference. What we all aim at in the treatment of insanity is to put the patient in just as good and just as effective a position as possible. If this contributes to it, it is a valuable method of treatment.

In my own experience, within the last year I have had three cases that might be considered as types of others that I have had, all illustrating different phases of this subject. I will recite briefly the symptomatology, treatment and results in these cases:

A lady, 38 years of age, unmarried, the sister of a physician in Columbus, Ohio, began to have menorrhagia, this becoming so continuous as to constitute metrorrhagia, continued through several years resulting in marked anæmia and weakness but not much loss of flesh. Later she began to be morose, isolated herself from her brother and sister, was inclined to sit alone and have but little to say to the other members of the family; became suspicious of her intimate friends and relatives and finally imagined that she was being slighted and that they were doing things to persecute and annoy her. She ultimately developed delusions of persecution; had hallucinations of hearing, imagined that persons were coming to her room at night for the purpose of doing her mischief. About this time she was brought to us for examination. We kept her under observation for two or three weeks, made careful local examination and discovered an enlargement of the uterus about the size of an orange or a little larger and apparently an intramural fibroid. After careful consideration of the case, and the fact that she had three or four years probably to go before the menopause, and this hæmorrhage was excessive and producing a very decided effect upon the health of the individual, I advised operation. The uterus and appendages were removed. The patient made an excellent recovery and her improvement has been continuous ever since, now probably six or eight months. Her color is much better. There has been no symptom of insanity, she is much more cheerful and is apparently rapidly regaining her normal condition both mentally and physically.

We had another case under treatment suffering from a certain degree of enfeeblement, apparently dementia, and yet bright and intelligent in reply to questions; simply indifferent to her family and household duties. She was well nourished, of good color, fair flesh and good strength. She was probably about 32 years of age and had borne children. We made a careful examination in her case as we do in all. There was a decided laceration of the perineum with cystocele and rectocele; pronounced laceration of the cervix. Her friends were very anxious for recovery, wanted everything done that could be done, and especially wanted an operation. I hesitated somewhat in advising the operation because there seemed to be no symptoms resulting from her condition. On general principles however, I thought that such a condition ought to be remedied without any reference to the probable effect upon the mental condition, so an operation was done. The operation has been fairly successful but the patient's mental condition continues precisely the same. There has been no bad effect but no influence observed either way. *A priori* I was led to infer there would not be. In the first case I decidedly advised the operation and expected a good effect because I thought the local conditions were producing the mental state.

A third case came to us with this history: A woman 40 years of age, of nervous temperament, for years emotional and showing rapid fluctuations in mental states, but not in a condition to justify treatment in an institution. She had very much the condition described in the second case,—a decided laceration and very troublesome cystocele. She was operated upon by one of the gynecologists in the city and within six or eight days after the operation, which had seemed to be successful, she developed very violent symptoms of acute mania and after being kept in the general hospital for a few days she was sent to the institution. She passed through a very violent and very serious attack of acute mania, on the verge of collapse on three or four different occasions. She went home in about the condition that she was in before the operation. She was in good physical condition.

These cases illustrate what we have to contend with in considering the relations of pelvic disease to the development of insanity. There is a direct connection in some cases between local disease and mental symptoms. In other cases the local disease and mental symptoms are merely coincident. In the one we may expect

beneficial results; in the other we are not likely to have them. Then there is the possibility of complications such as the third case illustrates; but that it seems to me is not such as to deter from operation in any justifiable case. The rule of action, it seems to me, is, that if the local disease is of such a nature as to justify operation in any case, because of the nature of the disease itself, it is justifiable in conditions of insanity. If it is not justifiable for that reason it is not justifiable because insanity happens to be a complication.

I do not believe much in this mysterious connection of uterine diseases with states of insanity. There must be a rational connection. There is a popular idea, and it possibly extends to some members of the profession, that if you find any local disease connected with the sexual organs you are justified in inferring that it is connected with any mental phenomena that may exist. That does not follow at all.

Regarding the action of the Commission of Lunacy,—I think it is simply outrageous that any body of men should decide what kind of treatment a superintendent should give to his patients which is purely medical in its character. That is a presumption which we should not admit. We should protest against it on all occasions.

Since protection of patients through damage suits exists there is no occasion for other protection.

Dr. H. A. Gilman: I have been very much interested in Dr. Rohé's paper, and I congratulate him upon the large number of apparent recoveries that he reports. In our hospital where there is any history of pelvic disease or any suspicion of such disease existing we always examine the patient. If in our judgment surgical interference is necessary we secure the consent of the parents, husband or guardian of the patient and operate. It may be that the pelvic disease has no relation whatever to the mental disease; but are we not expected to treat the patient for all physical diseases which they may have while in our institutions, and should pelvic disease be neglected any more than any other? We have found in the treatment of pelvic diseases a large per cent of recoveries after surgical interference.

Dr. C. R. Woodson: The statutes of our State are very much more liberal in the treatment of disease and the dieting of patients than are some of the commissions of lunacy in other States. The

statutes of our State gives the superintendents of institutions the right to suggest or even dictate the line of treatment for the persons in the asylums for the insane. It is also liberal in regard to the patient. If a physician performs an operation and it is not done in a skilful manner and is not indicated, the laws of the State make him responsible for his action. It also makes him responsible for not acting. If the patient is entitled to an operation and the physician fails to operate he is amenable to the law and responsible for damages.

So far as operations upon insane patients is concerned, I am in that matter of the same opinion as upon the eating question: I believe the insane are entitled to the same that the sane are. If there is a pathological condition existing that needs an operation for its cure, the patient is certainly entitled to it. If we have a lacerated cervix and it is of such magnitude as to impair the patient's health, that lacerated cervix should be repaired. If there is a lacerated perineum and it impairs the patient's health to such a degree that it calls for an operation the operation ought to be performed, and if perchance, we help the mind we will have gained more than we set out for. There is no reason why a woman with a fibroid tumor should not be subject to an operation the same as she should be treated for pneumonia, if pneumonia existed. I can readily see the repair of certain parts will help to build up the physical health, and we know that our patients do not improve until we start to building them up. In cases of acute melancholia or acute mania there is no mental improvement until we have physical improvement. And so with cases of chronic mania. These drains upon the system help to bring about insanity in persons predisposed to insanity, and there is no reason why the patient should not be treated.

I must say that the proportion of pelvic troubles is not so large in our institution as in Dr. Rohé's. I do not believe the proportion of uterine troubles is any greater than in a like number of persons out of our institutions.

So far as the results from the operations are concerned, I can readily see that under some circumstances we can have mental improvement.

A patient under my charge was operated upon for hystero-epilepsy. After the operation she presented every symptom of an aggravated case of acute mania. She was dismissed afterwards and

still has the grand mal. Another case suffering from a mild form of insanity, was operated upon, and after coming out from under the anæsthetic had every symptom of acute mania. Another having a trivial trouble, came out from under the anæsthetic, with every symptom of confusional insanity. Still another case of melancholia had most pronounced symptoms. Two of these recovered and two did not recover.

Dr. C. G. Hill: In the interest of truth we should move very slowly before arriving at a definite and final conclusion on this very much discussed question. We get the reports of the gynecologists and they are probably a little too broad. On the other hand, we have the opinion of those interested in psychiatry, and they are probably too narrow. I can understand how easily one could be prejudiced in this matter. In the last few weeks a couple of cases came under my observation that would readily excite prejudice. One case was that of a young woman, of fine education, good social position and lovely character, who a couple of years ago developed epilepsy. Different specialists passed upon her case. Finally it was generally agreed that her case was due to some ovarian trouble. No lesion of the ovaries was discovered, but in the absence of any other cause it was supposed that her epilepsy was connected with the functions of these organs. Her ovaries when removed were found to be as sound and natural as when God made them. She came out of the operation in good health and we waited anxiously for results. One year ago the operation was performed. The next month after the operation she had the usual attack of epilepsy and has had it every month since, intensified rather than diminished in severity. I spoke rather complainingly of this to a gynecological friend, but he assured me that while this case failed, many other cases were successful; that even in the absence of any positive disease of the ovaries the traumatism would relieve the epilepsy in some cases. Another fact worthy of consideration in removing the ovaries in these cases is that the possibility of propagating a neurotic or epileptic progeny is removed. Taking all things into consideration, in this case, there was little harm done although no good was accomplished.

The other case was that of a lady who ten years ago had her ovaries removed, I do not know for what lesion. She had evidently, from her description of the case, some neurosis that had made

life a burden to her. After passing through many forms of treatment under many practitioners it was finally decided to remove the ovaries to anticipate the menopause. The ovaries were removed, the menopause brought about, with no change in her condition. She dragged on in her miserable condition, year after year, from sanitarium to hospital, and finally into an asylum where she recovered. This case also suggested a prejudice against the random removal of ovaries for the purpose of anticipating the menopause. Yet my gynecological friend assures me that in many cases this operation is followed by brilliant success, the patients being restored to health.

It is seldom our privilege to have one among us so well versed in psychiatry and at the some time so well trained in gynecology, and if Dr. Rohé goes on with his work we can well afford to withhold our opinions until we have further evidence from one who can examine both sides of the question so frankly and candidly.

Dr. GEORGE H. ROHÉ: I have nothing to add to what I have said. I have simply to thank the members of the Association for the very generous comment they have made upon the work of which I have spoken. I feel that Dr. Clark has stated the case very fairly, as was to be expected. I did not claim—I tried to disclaim—that the results in all of these cases were *propter hoc*. We are not sufficiently familiar yet with the relations between bodily diseases and mental disturbances. Other bodily diseases ought to claim fully as much, if not a larger share, of our attention as these diseases of the pelvic organs in women, and I am glad that so many members of the Association are devoting themselves to elucidating the relations between mental diseases and preceding physical disturbance. I believe the opinion which has been prevalent, that bodily diseases in the insane are the consequences of mental disturbances, is passing away, and we are beginning to believe that the physical substratum is the origin of most disturbances whether in the nervous or any other system.

I have been very much gratified, indeed, at hearing the positive expressions, from such conservative members of this Association as Drs. Woodson, Richardson and Gilman, that an insane person, man or woman, has exactly the same right to be treated for any bodily defect as has a sane person.

THE SIGNIFICANCE OF MOTOR DISTURBANCE IN INSANITY.

BY A. B. RICHARDSON, M. D.,
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The essential unity of mind is an axiom. It has its different phases, its subdivisions and varying forms, but the omnipresent and unvarying *ego* binds all together in one indivisible whole whose individuality is always unique and sharply defined.

The text of this paper is the indivisibility of brain activity. The purpose is to call attention to the inseparable character of all cortical action, the dependence of each class upon the other, be it sensory, motor or ideational, and in particular to dwell upon the nature of the motor disorders that accompany the ideational disturbances; to indicate, if may be, the points of consonance in their states of diseased functions, and especially to call attention to the value that motor phenomena so frequently have in determining questions of diagnosis and prognosis in mental disorder.

It is quite reasonable to anticipate that this study will prove important. A large part of the expression of ideation is in form of muscular activity. It is true that the localization of functions in the brain has brought into marked prominence the preponderance of activities of certain types in certain areas, and we fear that the emphasis that has been given to such evidences of localization has in too great degree thrown in the background and covered over the fact that this localization is, after all, only the localization of centers from which cortical activity finds egress in certain forms, dependent, after all, upon other parts of the cortex for their especial kind of activity and possessing in themselves also many other kinds of energizing capacity.

The interdependence of all these so-called centers is well illustrated in mind disorders. The functions of the cortex are, after all, essentially indivisible, be these sensory or motor, ideational or reflex and instinctive. The varieties of motor disturbances that are found in insanity are numerous. Their significance varies greatly. I have thought that it might be useful to divide them generally into two classes. The first class might be termed incidental, the second essential.

As an example of the first may be mentioned the hemiplegia or monoplegia that sometimes precedes or complicates insane states. As an illustration of the second may be named the speech disturbance of the paretic, in which the disturbance in the motor mechanism seems inseparably bound up with the dementia of the disordered mind activity. Of the former it is not our purpose to speak at length. It is probable that they are found in greater proportion among the insane than in the sane. The vulnerability of nervous tissue that finds expression in mental derangement also shows itself in vascular degenerations and the grosser forms of disease that cause the paralysis. Extravasations, thrombi, and emboli are probably more numerous among the insane than among the sane; so also doubtless are cerebral abscess, foreign growths, or the special degenerations of syphilis, tuberculosis or carcinoma. I know of no accurate statistics on these points, but our experience readily recalls the frequency with which fatal terminations among the insane occur from one or the other of these complications. The relation of certain forms of infantile paralysis to imbecility and idiocy is something similar to this. There is in some of these cases doubtless a direct causative relation between the hemiplegia or other paralytic affection and the general defect in development of the cerebral cortex. In other cases the connection is only incidental. The tissues of the cortex are more vulnerable and the grosser lesions more frequently occur at the time that a general error in nutrition is seen that results in general defect in the cortical development.

Passing to the second class it is of interest first to notice how motor disturbance and defect is connected with states of intellectual deficiency. In almost every case of intellectual deficiency more or less error in muscular development will be seen to accompany it. The muscles are of small size and defective power. Even in the cases that are of comparatively better muscular development, in which the individual groups of muscles are of apparently normal size, slowness in reaction time under stimulus, and defective coördination of the different groups are found. There is a marked awkwardness in gait and inability to perform the nicer and more delicate muscular movements; just as the cells that coöperate to evolve complex ideas and develop forms of intellectual energy are unable, through absence or imperfect development of communicating channels, to produce the evidences of

this coöperation, so are the cells that stimulate individual muscles, through the same want of connecting lines, unable to coöperate with others to evolve the more complex and more finely adjusted muscular movements. This applies to the muscles of locomotion, in which defective coöperation and diminished power are very generally noticeable, and also the muscles of articulation. Speech is slow and imperfectly articulated. It is not so much incoördination as want of coördination, not so much confusion in the activity of separate muscles as absence of power to bring them into combined movement. Just as in the intellectual field weakness and limited range are the characteristics, so in the motor field simple movements of limited extent are alone possible. It is interesting to parallel the awkwardness and limited range of motor power in cases of imbecility with the limitation in ideational activity.

In the treatment of such cases improvement in the one field comes in the same manner and from the same kind of training as in the other. The muscular power is increased and its range enlarged by methodic exercise of muscles, bringing more and more of them into combined action and subjecting them gradually to more prolonged and more complex tasks. The ideational field is extended and developed in like manner. Simple intellectual tasks are gradually made more complex, and step by step the range is widened as new channels of communication are opened by extension of fibrillary ramifications in the cortex. Neither can ever attain marked prominence, because the number of the cells is limited and the extent of their fibrillary ramifications also restricted by nutritive error or deficiency.

Coming to the more active forms of insanity the parallel may be continued in the study of dementia. The facial expression, the attitude, the range of movement in the dement all betoken diminished intercommunication of cortical cells, a marked limitation in muscular power, and a reduction to simpler forms. The complex in motor action becomes more difficult or impossible, the same reductions being seen here as are noted in the ideational realm.

There is a form of dementia designated as organic that is more likely to be associated with *foci* of degeneration in the cortex, giving rise to localizing symptoms in the motor field. This is because the degenerations of this form are grosser—that is, more complete in the cells or groups of cells attacked, more irregular in extent and less molecular in character. We will see as we pursue our

study that the presence or absence of distinct localized motor phenomena in insane states depends upon the character of the degenerative process rather than upon its extent. If it is gross in character—that is, a complete destruction of the parts affected—rather than molecular, then we may expect more evidence of complete loss of motor power in certain areas or more evident limitation of this power. If it is molecular—that is, not accompanied by complete degeneration and complete destruction of functional power in certain cells or groups—there is diminution but not complete loss of muscular power and less pronounced, less complete loss in ideational capacity. In each case the character of the degenerative process, as evidenced in disordered functions in one field, shows itself by similar evidences in the other area.

Let us turn next to the changes of senility. Compare in these the effects in the ideational field with those in the motor. The same correspondence is to be noted. In old age the ideas are of more limited range, new thoughts are more infrequent, there is a tendency to fixation, an aversion to change, a loss of memory, enfeeblement of intellectual grasp and a general aspect of weakness and unsteadiness. At the same time there is a gradual diminution in motor power. There is the bent form, the relaxed facial outlines, the unsteady and uncertain gait, the weakness of tremor, the loss of confidence in power of equilibrium, as shown in use of a staff or the arm of another. The speech of the senile is especially characteristic of this union of phenomena. It is ataxic, amnesic, and aphasic. The loss of memory limits the range of expression, the weakness of mind is seen in the slowness of reaction time and the simplicity of the expression, while the motor disturbance is seen in indistinct and hesitating enunciation, piping voice, and the restricted power of modulation and absence of forceful and clear-cut articulation. Here, too, the varying types of mental disease are accompanied by varying motor phenomena. Pure senile dementia is a negative state, a limited range of action in mind and body. Senile mania and senile melancholia show less actual loss of power and more confusion, there is less loss of memory and less paresis, more emotional disorder and more muscular restlessness. The fact that the degeneration is not so complete nor destructive is seen in the one set of symptoms as it is in the other.

Take again the insanity of alcoholism; tremor, impaired equilibrium, weakness, ataxic and aphasic speech are among the motor

phenomena of the alcoholic. Irregularity is a prominent symptom. So also in the ideational realm, rapid emotional fluctuations, instability, weakness, amnesia, a blurring of the intellect, and fleeting hallucinations are prominent signs of disorder. In this form of insanity motor disorders are nearly always present. They are characterized also by irregularity and marked variations, and in no other form of insanity are the pathological changes more variable or more unequal in distribution. While they are pronounced where they do exist, and destructive in character, they attack cells and groups of cells in an irregular and seemingly erratic distribution. Large areas are not affected, so that distinctly localized symptoms are not numerous, but tremor, muscular weakness, incoördination and loss of capacity for delicate motor manipulation all betoken the presence of destructive lesions of irregular distribution and extent.

In the motor as in the ideational field the symptoms are correspondingly special and characteristic, noticeable for their irregular exhibition and their elements of instability.

In epileptic insanity there is also a most interesting correspondence between the disorders of the motor field and those of the intellectual zone. The motor disturbance of the epileptic attack has many points of resemblance to the mental symptoms of the insanity that so frequently results from the disease. It is paroxysmal and explosive, violent and sudden; so also are the mental symptoms paroxysmal, often sudden and unexpected in development, violent and explosive, and notoriously uncertain. The change in disposition in the epileptic is remarkably characteristic. From this change alone an experienced observer will frequently be led to suspect the presence of epilepsy. There are present extreme irritability, a combative tendency, undue suspicion, and sudden and violent outbreaks of temper from comparatively slight causes.

It is easy to note the points in which these show resemblance to the well-known motor phenomena of the epileptic attack. The correspondenee may be carried farther, however. It is well known that epileptic insanity has a marked tendency to develop dementia. The enfeeblement is pronounced and characteristic and often rapid. In the chronic form it often reaches a most extreme degree. Our epileptic dements are among those mentally most helpless and most pitiable, wrecks of the saddest type. They are often easily distinguishable, and not from their mental characteristics, or the absence of them alone, for the motor phenomena are equally

peculiar and significant. The awkward gait, expressionless countenance, immobile or unnaturally distorted; the rigidity of muscles in the extremities that causes each individual digit to stand out apart from its fellows; the slow and imperfect speech, all show in this area the same degenerative changes, preventing the coöperation of groups of cells in rythmic action. The range of action is greatly restricted, the more delicate movements are impossible, fine adjustments can not be made, and the movements are comparatively simple in kind. It is interesting to watch the movements of the chronic epileptic in whom dementia is pronounced, and to compare the mental with the bodily states. The kind of degeneration that is portrayed in one will be seen also in the other. If the dementia is considerable the awkwardness, speech disturbance, and restricted muscular action will also be evident. If there is but little dementia there will be less motor depreciation. The exceptions to this rule are remarkably infrequent.

It is in paretic dementia particularly that motor disorders have been most conspicuous in the standard descriptions of insanity. We have reserved consideration of this variety thus far because we desired to make prominent the fact that motor symptoms were of interest in many other forms as well as in this, which has been, heretofore, most conspicuous in literature. Paretic dementia has sometimes been called a premature old age, and, as far as the motor symptoms are concerned, there is a marked correspondence between the two forms. Dementia is prominent in each, with motor enfeeblement, speech disturbance, and often impaired coördination. As in the other forms of mental disorder, so here we find a characteristic combination of the two sets of symptoms; where the dementia is marked, the mental enfeeblement conspicuous, we see, also, slow speech, slow movement, awkward gait, limited range of movement, an extremely limited power of combining movements, and inability to execute the delicate and complex, where coördination is most required. The writing of the paretic in this form of the disorder is most characteristic in the evidence it gives of loss of memory, of motor function in the elision of syllables, and the omission of letters, or of whole words. In the more active forms, characterized by exalted delusions and general extravagance and disorder in ideation, we find overaction and disorder in the motor field. The motor symptoms show this in the failure to execute intended movements correctly, the confusion in coördination. In both fields the rapid approach of weak-

ness and destructive degeneration are prominent. In this form of insanity the destructive nature of the diseased processes is the most conspicuous of all insanity. In this form motor complications are most numerous and most conspicuous. In this form persistent and complete dementia, rapidly supervening, is most prominent; and in this form, also, motor enfeeblement, rapidly progressing, permanent, and resulting ultimately in complete paralysis, is a prominent part of the symptomatology.

Turning for a moment to the general varieties of insane states, if we may so speak, how often we are led to speak of a paralysis of volition. Patients say, "I know I should do so and so, but I simply can not do it." There is a full knowledge of what is required, but when the time of action comes the patient simply can not bring about a rise of energy in cell activity to the point of action. This paralysis of will relates both to ideation and to movements. The motor functions are inseparably bound up with the general ideational activity and the process affects all alike. Similarly the nature of insane states is portrayed in the motor symptoms of stuporous insanity, in mania, and in melancholia. That these changes are more molecular, more essentially nutritive errors, rather than destructive processes, is shown in the absence of actual loss of motor power and the absence of evidences of prominent motor enfeeblement.

This paper is already too long and we must hasten to a close. We have avoided statistics, that are often misleading because based upon erroneous data, and we have also avoided the description of special cases. The object has been to bring more prominently into view the intimate connection that exists generally in insanity between the motor functions and the pure intellectual activities of the cortex, a connection that should lead us to study the states of motor activity in any case of mind disorder.

As expressed in the muscular activity, the nature of the pathological change is often as surely shadowed forth as in the phenomena of mind disorder. A conclusion that seems impressed upon us is that the activities of the cerebral cortex are, after all, a unit.

They all go together to make up one harmonious whole, and the perversion of the *ego* in insanity is the evidence of a general disturbance in the cortex. Because, therefore, signs of disorder seem limited to certain intellectual areas, we should be careful not to be too hasty in placing a limit on its influence over other activities of

the cortex. There is a certain indivisibility of cortical energy that makes limitation in the influence of pathological changes of purely cortical character well nigh impossible.

The general nature of the essential motor disorders of insane states indicates that they are disorders of the elements that originate activities rather than of the centers from which these activities finally leave the cortex. The accidental motor symptoms are, on the other hand, more directly connected with the pathological changes of these centers. It seems to the writer, too, that a conclusion that is justifiable, and also borne out by histological investigation, is that the motor element is a cell rathér than an area, a cell that probably differs in form from cells with other functions, but is not restricted to certain areas of the cortex. The division would seem to be more naturally among the forms of cells and the layers of the cortex rather than among special areas.

I refer now more particularly to the elements that originate impulses, ideational, sensory, or motor, rather than to the elements through which they finally leave the cortex. If my meaning is clear a distinction can be drawn between the two classes of elements, and it is the intimate and indivisible blending of the one class that gives rise to the indivisibility of the symptoms in insane states and the difficulty in accurately determining the extent of the disease in the cortical functions.

THYROID FEEDING IN SOME FORMS OF MENTAL TROUBLE.

BY C. K. CLARKE, M. D.,
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At a meeting of the Medico-Psychological Society, held in Chicago two years ago, I read a brief paper on some problems in cell nutrition, taking the ground that the day was not far distant when certain apparently hopeless cases of mental trouble would be surely and regularly cured by the adoption of therapeutic measures not yet known. The opinion was formed deliberately as the result of an extensive experience with epidemics of typhoid among the insane, where recovery after recovery took place in cases of insanity looked upon as incurable. The fact that this happens now and again in acute diseases, such as pneumonia, is accepted by many, and by others regarded as mere coincidences.

There are others again who maintain that such results, obtained by a temporary stimulation of the nerve cells, are not likely to prove permanent, but are evanescent. This is quite true in some varieties of insanity, but does not apply to the class of cases cured by the development of acute disease. This fact will be strikingly illustrated by some of the cases detailed farther on. As pointed out in a former paper, we sometimes have patients who get so far toward recovery, then for a time stand still, no matter what we do, and finally slip back into an apparently hopeless condition.

We feel that theoretically they should recover, and yet there is something we can not put our finger on necessary to give the patient the spurt necessary to prevent the drifting into hopeless dementia. It is in these cases the unexpected happens, when typhoid or some acute disease occurs—possibly the friends remove the patient, who recovers in spite of our prophecies to the contrary. Such a result has happened more than once in the experience of most of us who have been any length of time in hospital service.

It was with peculiar interest we read the first vague notes of thyroid feeding in cases of mental disease, and when our experiments were under way the results obtained by Drs. McPhail and Bruce made us follow up the subject with deepened interest. We felt quite satisfied that success with thyroid feeding must be a very

doubtful quantity in any but the class of cases benefited by acute disease, and, as time goes on, it will be learned that this treatment requires most judicious handling, being just as dangerous in some cases as it is beneficial in others. For this reason the earlier in the day extensive clinical studies are published the better.

Having in mind the class of cases particularly benefited by acute disease, the selection of patients for the experiments in thyroid feeding was made with great care, and the results justified the course followed in a most gratifying way in several instances.

In citing cases, it is impossible in the limited time at my disposal to give more than a hurried outline, and I am forced to deal somewhat in general statements; but the cases mentioned are those in which it was hoped to secure benefit. We have made a series of experiments with thyroids in well-marked chronic cases with some peculiar results, which can not find place here.

As a preliminary experiment a chronic dement, whose mind is almost a blank, was fed fifteen grains of fresh thyroids three times a day. The experiment was unsatisfactory. There was difficulty in getting the glands regularly, and the patient could not be depended on to take the thyroids when called upon to do so. There was little or no reaction, the temperature and pulse were not disturbed to any marked extend, and the patient's mental condition remained quite unchanged. Beyond the loss of a good many pounds in weight, rapidly regained when treatment was discontinued, the results may be said to have been negative.

Case I.—J. S., male, age 20, single, of active and temperate habits. Twice insane before present attack. Hereditary, exciting cause la grippe. Insane two weeks before admitted. In certificate it is stated, "He is dull, impassive, tendency to look vacantly and shows no sign of intelligence. He hesitates and does not wish to answer questions. General appearance, melancholy. His whole conduct is quiet, takes no interest in anything, chews chips (going to swallow these). Puts his hands on the hot stove. Every appearance and action of dementia. He holds a book in his hand for half an hour without moving, etc."

Admitted January 12, 1893.—Was in a state of complete stupor, without intelligence, dirty in habits, and required as much attention as an infant.

In January, 1894.—The patient unchanged, getting thinner in spite of every attention in the way of extra diet and tonics.

In January, 1895.—Unchanged, mentally, although much improved in physical health. Sits in one place all day; has to be led out to meals, and is in a condition of complete stupor. Voids urine in bed regularly every night, and clothing has to be changed every day.

January 8, 1895.—During his previous residence in this hospital, when his mental condition was the same as at present, he recovered during an attack of typhoid. It is thought that under the circumstances thyroid feeding might give interesting results.

January 8th.—Treatment comenced with one dram raw thyroids. Before giving, temperature 97.4°, pulse 78, respiration 13. Difficult to get specimen of urine for analysis.

January 10th.—Thyroids omitted on account of slowing of pulse—51.

January 12th.—Five grains of desiccated thyroids noon and night.

January 13th.—Five grains t. i. d.; perspiring freely. Habits more cleanly; puffiness below the eyes; much brighter mentally, and will laugh and talk.

January 14th.—Slight epiphora and œdema. Urine obtained and analyzed; color, light amber; react. acid; sp. g., 1.016; no albumen, no sugar; dose of thyroids increased to 10 grains t. i. d.

January 16th.—Perspiring freely; muscular twitching in hands. Brighter than at any time since admission. Laughs and talks freely.

January 18th.—Dose increased to 15 grains t. i. d. No perspiration.

January 19th.—Skin dry and only a little moisture in the axilla. Obeys instructions with alacrity. Dose increased to 20 grains t. i. d.; no change.

January 22d.—Perspiring; has herpes labialis. Twitching of muscles of thumb.

January 23d.—Same doses, viz.: 20 grains t. i. d. Reaction marked. No further mental change.

January 24th.—Nasal mucous membrane much congested. Twitching of muscles of hand and left side of upper lip marked. Is very bright mentally.

January 28th.—Dose increased to 25 grains t. i. d. Brighter than ever, answers questions readily. Complains of thirst. Flushed at times and perspiring.

January 30th.—Talks a great deal. Answers all questions.

Pulse rapid, irregular, and weak. Hands tremble. Muscles of face twitching.

January 31st.—Thyroids discontinued. Complexion clearer. Scales on face. Complains of thirst and of feeling sick. Talks a great deal. Has lost flesh and is weak. Fierce twitchings of upper extremity and face. Arterial tension diminished. Complains of headache and gastric distress. Urinary analysis—color, light amber; c. g. 1.022. Acid; a trace of albumen; no sugar.

February 1, 1895.—Quite well mentally, as far as can be ascertained. Still complaining of nausea and thirst.

February 2d.—Desquamating freely. Quite well mentally. Albumen disappeared from urine.

February 3d.—Feeling better physically; very hungry; put on Easton's Syrup.

February 4th.—Improved; is bright and happy and can not get enough to eat.

February 5th.—Putting on flesh rapidly.

February 6th.—Not quite so bright mentally.

February 7th.—Has suddenly relapsed to condition of complete stupor; has returned to his old dirty habits.

March 1st.—No improvement; is worse physically and no better mentally for treatment.

The result in this case was disappointing, although we felt satisfied the relapse was likely to occur. The sudden way in which this happened was remarkable, but I have seen the same thing take place several times after typhoid.

Case II.—H. S., male, age thirty-five, married; habits of life good; exciting cause, financial troubles; became insane in January, 1894, and was admitted to Rockwood Hospital in February of the same year. The information given in certificate was not very satisfactory, but it was said that patient "mutters and crouches, tears his bedding, throws the contents of his pail around the walls of his cell, and is occasionally uncontrollable; is the subject of various delusions; is incoherent in conversation, wild and dangerous." Wife states that on January 23, 1894, came home yelling and saying that he had gone crazy, that something was wrong with his head. He then made several attempts at suicide.

When admitted to Rockwood was in a condition of stupor and in wretched physical health; circulation sluggish.

March 19, 1894.—Sleeps well, takes his food fairly, never speaks,

sits in one place in a stupid state all day long, takes no interest in his surroundings, cleanly in habits but careless as to appearance; has been placed on extra diet, given tonics, etc.

May, 1894.—Unimproved in spite of treatment, very destructive to clothing, does not talk, untidy, sits in one spot all day, can not be induced to work, has gained a little in weight, but physical health still very poor; very constipated.

July, 1894.—Dirty in habits day and night, destructive to clothing, quiet and never violent, never speaks; improving in physical health.

August, 1894.—Condition unchanged.

January, 1895.—In much better bodily health; not changed mentally. Dirty in habits; case not improving, but may be benefited by thyroid treatment.

January 14, 1895.—Treatment commenced. Before first dose was given, temperature 97 3-5°; pulse 79, respiration 19; urine examined prior to commencement of treatment amber colored; s. g. 1.026, froth somewhat persistent; acid phosphate present. No albumen, no sugar. Slight trace of indican. Five grains of thyroids given at noon and night.

January 15th.—Morning temperature, 99.1°; evening 98.3°; morning respiration, 20; evening, 23; pulse, 82; evening, 75. Five grains thyroids given three times a day; perspiring freely.

January 16th.—Same doses. Perspiring freely. Morning temperature, 99.3°; morning pulse, 82; respiration, 19. Evening, 99.2°; evening pulse, 81; respiration 22. Still dirty in habits; only one dose of thyroids given. Temperature, 98°; pulse, 87; respiration, 19.

January 18th.—Dirty in habits. Dose of thyroids increased to ten grains three times a day, as no mental change has taken place. Morning temperature, 99.3°; pulse, 95; respiration, 24. Evening temperature, 99.2°; pulse, 90; respiration, 16.

January 19th.—Much brighter mentally, and talks; says he feels a great deal better. Perspiring freely. Temperature, 98.1°; pulse, 92; respiration, 24.

January 21st.—Supply of thyroids exhausted. No marked change in pulse, temperature, or respiration.

January 22d. Dose of thyroids increased to 15 grains three times a day.

January 23d.—Decided reaction denoted by pulse and tempera-

ture. Morning temperature, 100°; pulse, 97; respiration, 20. Evening temperature, 99.4°; pulse, 113; respiration, 28. Answers questions quite readily. Is very nervous at times, and his judgment is far astray.

January 24th.—Epistaxis. Perspiring freely. Morning temperature, 97.9°; respiration, 23; pulse, 93. Evening temperature, 99.3°; respiration, 28; pulse, 103. No change mentally.

January 25th.—More talkative than ever before; pulse, temperature, etc., about the same.

January 26th.—Dose increased to 20 grains three times a day.

January 29th.—Since the dose was increased little change in pulse, temperature, and respiration; average about—temperature, 99°; pulse, 90; respiration, 25. Is steadily improving mentally; answers all questions promptly; says he feels better than ever. Face often becomes flushed, tongue coated, costiveness marked.

January 31st.—Saliva running from side of mouth, causing seborrhœa. Says he feels sick at stomach; vomited after dinner; complains of headache.

February 1st.—Thyroid discontinued to-day. Sick at stomach, slight desquamation on forehead and arms.

February 2d.—Desquamation and nausea.

February 3d.—Headache, nausea, urine acid, s. g. 1.034. No sugar, no albumen. Has lost much flesh; is much better mentally, although not well. Has been put on Easton's Syrup.

February 10th.—Sitting up, but very weak. Eats well and is cheerful. Steadily improving mentally.

February 20th.—Still improving and gaining in every way.

March 1st.—Getting fat. Eats and sleeps well. Is quite happy and wonderfully better mentally.

March 15th.—Continues to improve. Working steadily. Quite recovered mentally.

March 26th.—Discharged recovered.

Case III.—R. D., male; age, 45; single; insane nine months before admitted; delusional melancholia; cause of disease probably syphilis; admitted April 5, 1894. In poor physical health. A typical case of melancholia. Put upon hg. and iod.

May, 1894.—No change mentally. Bodily health decidedly improved.

June.—Unimproved.

July.—Complains of head a great deal.

July 5th.—Attempted suicide. Saved from drowning by the bravery of a fellow patient.

October, 1894.—Unchanged.

January 9th, 1895.—A little better.

March, 1895.—At a standstill, mentally.

March 5th.—Is to be put on thyroid treatment. Weight, 161 pounds; pulse, 85; respiration, 22; temperature, 99.1° in sitting posture; 6 in recumbent posture; temperature, 97.3°; pulse, 59; respiration, 17. Urine examined—color, light amber, acid; s. g., 1.013. No albumen; no sugar.

March 9th.—He looks on it as a joke—his being kept in bed. Sometimes sulky. Desiccated thyroids, 10 grains, given to-night. Face flushed.

March 11th.—Fifteen grains t. i. d.; eats well, face not so flushed.

March 12th.—Twenty grains t. i. d.; twitching of fingers this A. M. Face flushed, much excited.

March 3d.—Talking a great deal.

March 15th.—Losing flesh rapidly; feels ill; vomited to-day.

March 16th.—Tongue coated; exfoliation of skin of hands; headache, drowsy, trembling of whole body.

March 17th.—Skin peeling off hands in great flakes.

March 18th.—The twenty-grain doses still continued; a general feeling of malaise; has constant headache.

March 19th.—Thyroids discontinued; feels very ill; appetite poor; nervous trembling of hands, constant arterial tension diminished; has lost eleven pounds in weight since treatment commenced.

March 20th.—Sleeping a great deal.

March 21st.—Is bright but does not eat much; talking a great deal of nonsense; cheerful but restless, and will not stay in bed.

March 23d.—Taking tonics but appetite still poor; sarcastic. There has been a complete mental change, and he is the opposite of what he was before treatment commenced, and behaves and talks like one intoxicated; urine color, light amber; s. g. 1.016; acid, no albumen, no sugar. Has gained six pounds in weight in a week.

April 15.—Improving physically and mentally. Is full of fun, and jokes continually; delusions have disappeared, but he is too full of mischief to be considered well; working in brush shop.

May 1, 1895.—Is his old self again physically; mentally bright and cheerful.

May 7, 1895.—Slightly depressed, so the attendants state; he denies this to the medical officers.

May 16th.—Is restless but cheerful and full of fun.

May 20th.—Weight 161; in excellent physical health, and decidedly improved mentally; seems to be recovering.

Case IV.—J. M., female; single; age, 21; native of Scotland; hereditary tendency marked; exciting cause not stated. Was admitted in November, 1894, and at that time had been insane two months or more. The history and medical certificates contained meager details of the patient's condition. She was said to refuse food and medicine, to destroy clothing, to expose her person on every opportunity, to be filthy in her habits, etc.

When admitted was found to be in poor physical health, pupils dilated, and face a good deal congested, although this appearance was probably intensified by a large amount of acne.

She had a staring look, refused to converse, and was in a half-dazed and stupid condition. Was placed upon tonic treatment, and every possible effort made to build her up, without avail. At times she was excited and erotic, and inclined to be violent, although it was impossible to get her to converse. At all times the element of stupor was prominent. The skin had a greasy appearance and the patient ceased to menstruate immediately after her admission. About the middle of January the case began to appear hopeless, as there was not the slightest response to the different methods of treatment employed, and the patient seemed to be degenerating. The weight was about 120 pounds; pulse, 85, temperature, 96 4-5°; respiration, 16, when thyroid treatment was commenced.

January 26th.—Ten grains of thyroids given three times. No effect.

January 27th.—Dose increased to fifteen grains three times a day. Evening temperature, 98 2-5°; pulse, 80; respiration, 19, and pulse irregular.

January 28th.—Same dose of thyroids. Temperature, 98 4-5°; pulse, 96, irregular; respiration, 17; face flushed and feet cold.

January 29th.—Temperature, 99 2-5°; pulse, 100; respiration, 19; face flushed and patient quite talkative.

January 30th.—Thyroids increased to twenty grains three times

a day. Temperature, 100°; pulse, 120, intermittent. Mental condition much the same as previous day.

January 31st.—Temperature, 100°; pulse, 108. Eyes watery; respiration, 19; pulse intermittent; patient brighter mentally.

February 1st.—Temperature, 100°; pulse, 107; decidedly better mentally. Same dose of thyroids.

February 2d.—Much the same.

February 3d.—Temperature, 98 4-5°; pulse, 100; respiration, 18; talks quite rationally; is interested in her surroundings; the reaction from thyroids very marked; evidently on the way to recovery.

February 4th.—Thyroids discontinued, as patient began vomiting. Temperature ran up to 100°, and pulse 120. The pulse was most irregular and of wretched character.

February 5th.—Temperature remains 100°, but pulse has dropped to 80. Mental condition satisfactory. Has been placed upon an iron tonic.

February 9th.—Has remained very well mentally until now, but to-day shows a tendency to relapse. Is somewhat stupid and inclined to be impulsive. Was immediately put to bed again and given a cathartic. Brightened up at once and went on steadily to recovery.

On February 28th weighed 119 pounds; on March 8th, 126¾; March 14th, 133 pounds; March 18th, 136; on March 12th, menstruated; on March 25th was discharged recovered.

Case V.—F. C., female, aged 34, married; case of puerperal melancholia, with stupor. Was insane five weeks before admission. Admitted September, 1894. Her delusions were those characteristic of her form of mental disease, and there was a marked degree of stupor, as well as a certain amount of excitement at the time of admission.

In December, 1894, in spite of every endeavor in the way of feeding and building up, the patient began to fall back and the stupor became pronounced. The patient's habits were dirty, memory deficient, and at times she was markedly resistant.

On January 24, 1895, she was put to bed, preparatory to commencing thyroid feeding. Her weight was 102 pounds. The dose of thyroids prescribed was fifteen grains t. i. d.

January 27th.—Flushed and much better mentally; less resistant, although inclined to be excited.

Jaanury 29th.—Temperature, 98 2-5°; pulse, 75; respiration, 15; face flushed, brighter expression. Same dose of thyroids.

January 30th.—Temperature, 99 4-5°; pulse, 100; respiration, 18. Marked improvement in habits.

February 3d.—Temperature, 99°; pulse, 80; respiration, 17. Says she feels better. Exfoliation of skin of face and lips.

February 4th.—Very restless. Treatment discontinued. Put on iron, quinine and nux vomica.

February 9th.—Sitting up to-day; talks rationally, and has written to her home.

February 17th.—Has been quite well until to-day. Has become resistant again.

February 19th.—Still dull; ordered calomel and a saline.

March 3d.—Improving; has developed a large appetite and is gaining in weight.

March 10th.—Decidedly better.

March 25th.—Has gained 7½ pounds in two weeks.

April 10th.—Very much better than formerly. Went home on probation.

May 29, 1895.—Reported better, and getting along nicely at home, doing some housework, etc., although not completely restored mentally.

Perhaps the number of experiments is too small to justify us in claiming much for the results, but several very striking facts must be apparent. Cell nutrition is undoubtedly affected in a striking manner, increased metabolism occurs as the result of a quickened circulation, and the autotoxic process that exists in some, if not all, cases of mental disease is interfered with in a way that may be beneficial. In other words, some patients are given a new start. On the other hand, if the vitality is low and the patient has not the ability to recover from the fever induced by thyroid feeding, decided harm will result from the treatment, and a rapid decline in strength probably takes place.

The sudden relapses in the well-marked chronic cases are similar to the relapses occurring in those patients who are temporarily benefited by acute disease, and yet they point out one significant fact, a fact that some day we must profit by, and it is this: If it is possible to produce temporary improvement of a marked character in certain cases of so-called chronic mental trouble, why should it not become possible to make this improvement permanent? It

seems like hoping too much, and yet when we come across occasional recoveries, after years of shadow, one can not help feeling sanguine of success. It is in the study of toxines we must look for our advances, and the solution of this problem must be found in time.

In this age of bacterial investigation one can not help believing that science will yet throw a flood of light on pathological mysteries in some forms of mental disease, and while it may be urged that, with our present want of enlightenment in regard to some of these problems in pathology, it is empirical practice to resort to such methods as thyroid feeding, still the end justifies the means.

The cases in which the feeding is resorted to should be carefully selected, and no doubt it will be found that the after-treatment plays a most important part. At all events let us have as much light as possible thrown on the subject by patient clinical investigation, and I think it will be found that we have added one more therapeutic resource to the limited number at our disposal in the management of a class of most unpromising cases of mental disease.

DISCUSSION.

Dr. H. M. HURD: I have had no experience in the use of thyroid extract for insanity. We have used it, however, at the Johns Hopkins Hospital, in a variety of conditions. Probably the most hopeful cases for treatment by the thyroid extract are those of cretinism and myxœdema. One case of cretinism has been under treatment for the last two years. When she came under observation she was, in all respects, the most wretched looking object I ever saw. She had the stature and appearance of a child of 4 or 5 years, although she was a woman of twenty. She was stupid, dirty and degraded to the last degree. Under the use of thyroid extract, in much smaller doses than Dr. Clarke seems to use in mental troubles, she began to improve and has continued to improve for two years. I saw her photograph the other day and the improvement in her condition is startling. She is almost good-looking! She has improved in stature, in general appearance, in intellect and bids fair to become a very pleasant and respectable member of the family. Her habits are said to have improved in a similar degree.

A medical gentleman recently brought his wife to the Johns Hopkins Hospital. She was suffering from myxœdema and had the characteristic change in the facial expression, bogginess of the

face and extreme stupidity. It was almost impossible for her to carry on a connected conversation or to generate ideas enough to speak a connected sentence. Under the thyroid extract, administered in this case hypodermically, she began to improve, and in about six weeks' time went home thoroughly well.

Another case was one of the tetany of pregnancy. The woman had suffered from attacks of tetany during eight successive pregnancies. These attacks were especially severe in the winter time. The patient was comfortable after she had finished nursing her child and usually during the summer season. Under the use of the thyroid extract, while in the hospital for a number of weeks, she improved so much that she went home. Although urged to use the thyroid extract, she did not continue it regularly, taking it only occasionally. I saw a letter from her the other day in which she said that she had gone through the winter more comfortably than for years, and had improved physically and in every respect was better.

There are some cases where the thyroid extract seems to do actual harm. I recall a case of severe exophthalmic goitre, with serious heart complication, where maniacal excitement followed the administration of the extract and the woman died of acute exhaustive mania.

The doses which Dr. Clarke gives in insane conditions are considerably larger than we give. We find that a dose of 10 grains and even one of 5 grains is sometimes followed by severe constitutional effects, such as exfoliation of the skin, severe nausea, loss of appetite and extreme loss of flesh; so that it is always necessary to watch the patient carefully in order not to administer too large doses. I notice that Dr. Clarke gives 20 grain doses in many instances and it occurs to me that possibly he uses a different extract.

Dr. C. K. Clarke: We have used three preparations,—the fresh thyroids, the desiccated thyroids and an English extract. I fancy the results are very similar in either case. We have been guided in regard to the dose by the effect. These are only a few of the many cases we have had. To some we have given five grain doses, but in others, where it was necessary to get the reaction, we have resorted to larger doses. In some cases you will get as great a reaction with a does of five grains as in others with a dose of twenty grains.

Dr. H. M. Hurd: Perhaps it may be interesting to know that

for a long time it was impossible to get the thyroid extract. We found it possible to make the extract by taking fresh sheep thyroids and digesting them with glycerine and filtering through a filter. If any of the members of the Association are disposed to use the thyroid extract and do not succeed in getting it through the dealers, I can send them a formula for making it for themselves.

Dr. C. K. Clarke: If you depend upon butchers for your supply of thyroids you are very apt to get something other than the thyroid gland; you will get the thymus gland.

The President: A few cases have been treated at the McLean Hospital recently upon this plan. We rather hesitated to use the various extracts and delayed the matter until we were able to obtain the tabloids. These have been used in a few cases, although not enough to report any results. What we had noted was that the smaller dose seemed to produce effects and we were afraid to give the larger doses. The indication is that we will get as good results from the tabloids as those published by other observers.

Dr. H. M. Hurd: Knowing as I do, the substance of Dr. Brush's paper, which he has been prevented from reading here, I will say that Dr. Brush seems to have used the thyroid extract in a class of cases somewhat different from those of Dr. Clarke. He seems not to have used it in cases of acute melancholia or of acute disease, but has obtained very interesting and satisfactory results in cases of chronic mania and in cases of irritable dementia, where the patient is restless and uncomfortable with a certain degree of dementia and with a good deal of depravity. In cases of this character he has obtained extremely interesting results. I am sorry his paper is not here, as I think all would be interested in his statement.

Dr. C. K. Clarke: I merely reported a certain class of cases to illustrate a particular point. We have made a good many experiments with a different variety of cases and we hope to have some interesting reports with regard to them later on.

SOME CLINICAL OBSERVATIONS UPON THE USE OF THE THYROID GLAND IN INSANITY.*

BY EDWARD N. BRUSH, M. D.,
Physician in Chief, Sheppard Asylum, Baltimore, Md.

I think there can be no better introduction to the present paper than to quote from the annual report of the Royal Edinburgh Asylum for 1892. "In a limited sphere medicine has during the past two years made a discovery, which will have the undoubted effect of preventing one form of mental disease in the future. The disease called myxœdema was only discovered about twenty years ago. It is primarily a bodily disease, but after it has existed for a time, certain mental defects and changes show themselves in nearly all cases. In a few of them the mental disturbances are so marked, that the patients come within the category of insanity, and are sent to asylums. Two such were sent to us this year. The next step in regard to this disease was the discovery that it depended on the atrophy of a certain gland (the thyroid) in the neck. Then the bold experiment was tried by a great London surgeon of taking a portion of this gland from an animal just killed, and transplanting it under the skin of one of these unfortunate patients. Most wonderful and encouraging results followed this. The next step in advance, was injecting small quantities of the juice of the sheep's glands under the skin of those patients. Still better results followed this. In fact persons who had been afflicted by this terrible disease for from ten to twenty years were completely cured by this means. Dr. Macpherson, a recent member of our staff, now at Larbert Asylum, was the first to try this treatment in a case where myxœdema had gone on and caused insanity, with a happy result of curing the patient. The next step was to administer the gland or its juice by the mouth. This safe and easy mode of treatment is now being universally used in all the cases of the disease, which will soon become a thing of the past, for it will in future always be treated and cured

*This paper was read by title at the Fifty-First Annual Meeting of the American Medico-Psychological Association, and in its present form with additional cases read by invitation at a meeting of the Philadelphia Neurological Society, Jan. 27, 1896.

in its early stages. The mental symptoms and the insanity will never develop at all, and 'myxœdematous insanity,' I trust, will never again appear in our tables. Our two cases who came in towards the end of the year are both improving and will soon be well."

The results obtained in the treatment of myxœdema and subsequently of cretinism and the more recent results reported by Clouston, Bruce, Macpherson, Beadles, and others in the treatment of insanity stimulated my interest in the matter, and about a year ago I first used the thyroid in the treatment of insanity.

The quotation which I have made from Dr. Clouston's report gives a very brief résumé of the history of thyroid therapy, so brief indeed that I may be excused for making more extensive reference to the subject, and in doing so I shall endeavor to show that the thyroid gland as applied to myxœdema, cretinism and insanity, is not used upon the same principle, if any principle exists for their use, as most of the other animal extracts so-called, as cerebrine, etc., etc.

As long ago as 1859 Schiff described the symptoms following the extirpation of the thyroid in dogs. His experiments were repeated and his observations confirmed by others, but no deductions of any value were drawn from them, and the functions of the thyroid as described by physiologists even down to the present time are vague and indefinite.

In 1873 (Transactions Clinical Society, Vol. VII), Sir Wm. Gull read a paper upon a cretinoid state appearing in adult life in women. In 1877 Dr. Ord presented a paper upon myxœdema to the Medical and Chirurgical Society of London describing a condition identical with that described by Gull. Dr. Ord discovered that what seemed the essential feature of the disease was a mucin yielding œdema and that the thyroid was atrophied or cirrhosed. In 1881 Charcot describing the same condition called it *cachexia pachydermique.* All of these writers noted the nervous and mental symptoms accompanying the condition. In 1882 J. and A. Reverdin and in 1883 Kocher described the results of surgical removal of the thyroid in man, operative myxœdema or *cachexia strumipriva.* Following these observations, Schiff again took up his old experiments upon dogs and in 1884 published in the *Archiv für experimentelle Pathologie* the results of his observations. He found that if he implanted the thyroid of another dog in a dog's abdomen, the

thyroid of the dog in whom the implantation had been made could be removed without any of the symptoms which would otherwise follow. Schiff thought the implanted thyroid maintained its vitality and if so he simply demonstrated that the gland could perform its functions or at least some of them in one locality as well as another.

In 1883 Dr. Semon pointed out the resemblance between myxœdema and the post-operative conditions described by the Reverdins and Kocher, and at the close of 1883 a committee was appointed by the Clinical Society of London to investigate the subject, and in their report made five years subsequently the facts above narrated are to be found.

It was following the appointment of this committee that Horsley made his experiments upon monkeys.

Acting upon the results of Schiff's experiment of implanting a thyroid in the abdomen of a dog, and upon the clinical observations of Ord, the Reverdins and himself, Kocher made an unsuccessful attempt to graft a thyroid in man, and was soon followed successfully by Bricher and Victor Horsley. These experimental operations were undertaken independently, and all about contemporaneously. They were the direct result of experimental work in laboratories combined with clinical observation. The few attempts to implant thyroid in myxœdema were followed by more or less improvement in the condition of the patient, but never of a permanent nature. Careful observers like Bettencourt and Serrano soon saw that the improvement in some cases was too early and too rapid to be the result of functional activity of the implanted gland, as in some cases changes were noticed before vascular connection was possible between the tissues of the patient and the grafted thyroid. The deduction seemed quite obvious that the absorption of some part of the gland or of its secretion explained these results and hence the introduction of the juice of the gland and extract of the gland by hypodermic methods and subsequently of the gland itself either in its fresh state or in a desiccated form, *per os*.

This was the dawn of a rational therapeutical application of principles laboriously worked out in the laboratory and by clinical observation. It has or had nothing in common with the empirical use of animal extracts employed apparently upon the principle that "every part strengthens a part," using cerebrine for weak

brain, cardine for weak hearts and other alleged extracts for conditions which I may be excused for not mentioning.

In the treatment of myxœdema the first attempts were to supplant the functions of the atrophied gland by an artificially implanted one. Now, and since the remarkable results first obtained by Dr. Geo. R. Murray of Newcastle, England, who deserves the credit of first employing the extract of the gland by hypodermic methods, the rationale of treatment is the introduction into the blood, either through absorption from material thrown into the tissues or through the digestive tract, of the material which is lacking, either through absence or inactivity of the patient's thyroid.

This naturally brings us to the queries: What is this substance? What are the functions of the thyroid? Here we are to a great degree obliged to confess our ignorance. We know anatomically the nature of the gland, its abundant blood supply and its relations to the neighboring nerve trunks. Foster (Text Book of Physiology, Part II, page 764) says, "it is difficult not to connect" the accumulation of mucin or a mucin-like body in the skin and various tissues in myxœdema "with the formation in the thyroid of colloid material." He adds however that we know so little about these substances and the part they play in the physiological processes that any views "must be at present to a large extent speculation."

Horsley in the course of an extended article upon the Function of the Thyroid says: "We must conclude, it seems to me, that the thyroid gland is a structure essentially connected with the metabolism of the blood and tissues; that in fulfillment of its function it is hæmopoietic both directly and indirectly, and that it forms, that is, secretes from the blood a colloidal substance, which is transmitted *via* the lymphatics from the acini of the gland to the circulation." Prof. Edward A. Shafer in the course of an exceedingly interesting address in Physiology before the British Medical Association in August last, taking for his subject "Internal Secretion," appears to favor the theory just quoted from Horsley. Shafer says that the extract of thyroid produces a distinct lowering of the blood pressure, without changing the force or rate of the beats of the heart.

Arguing from therapeutical effects back to physiological func-

tion, it would certainly seem, in our present state of knowledge, reasonable to infer that whatever the functions of the gland may be they exercise an important metabolic influence, and probably through material secreted in the gland, and taken into the blood through the lymphatics.

The reason for this inference lies in the fact that all the disastrous effects of removal of, or absence of function in, the gland are overcome by putting into the circulation either through the tissue or digestive tract the extract of the gland.

This inference receives additional support from the recent experiments of Fraenkel in the Institute of Medical Chemistry in Vienna who has succeeded in isolating an active principle which he asserts is a pure chemical body to which he has assigned the empirical formula $C_6 H_{11} N_3 O_5$. In animals, after the removal of the thyroid and the supervention of convulsions and other symptoms, temporary recovery followed the injection of a one per cent watery solution of the substance.

The first application of thyroid in the treatment of insanity was in cases associated with myxœdema. The first instance of recovery from myxœdematous insanity was under the care of Dr. Macpherson in the Edinburgh Royal Asylum. Other cases have been reported from time to time, until at the present time an extended series of cases could be cited.

The treatment of myxœdematous insanity appears always to have been conducted upon the theory that the thyroid administered either in extract or substance could supply something which was lacking to complete normal physiological function.

Following the successful treatment of myxœdematous insanity we have now a series of cases, less extended but none the less interesting, in which the thyroid has been used, with more or less success, in forms of insanity not associated with myxœdema.

It has probably fallen to the lot of all who have had an intimate and continuous association with the insane to observe the frequent changes in their mental states due to intercurrent bodily diseases. I have seen a sullen, morose dement of more than fifty years' standing, whose usual greeting to his physician was some almost wholly unintelligible remark about the Devil, accompanied by an attempt to expectorate on the doctor, become mild and apparently appreciative of the physician's attempts to relieve him, answering questions intelligently and respectfully, and in every way showing a complete

change in manner, during a severe attack of colic, only to relapse to his former state when relieved. Two cases of profound melancholia have within my recollection recovered rapidly during the convalescence from an attack of facial erysipelas, and another case apparently chronic in form after nearly dying with an immense carbuncle, which extended from the superior angle of each scapula to the roots of his hair was found when convalescing to have lost his melancholy.

Febrile attacks, pneumonia and typhoid fever for example and septic conditions in the insane have been followed also, some times in very unfavorable cases by amelioration of or recovery from, the mental symptoms.

Dr. Clouston, writing in 1883 (Clinical Lectures on Mental Diseases, page 190) says: "I believe that some day we shall hit on a mode of producing a local inflammation or manageable septic blood poisoning, by which we shall cut short and cure attacks of acute mania." It would be very interesting to follow up the thought contained in this suggestion; to inquire whether in certain cases, the bacillus said to have been found by Bianchi and Piccinino and Briand in acute delirium, and by Rasori in delirious mania, and by Pelizzi in Italy and Goodall in England in hæmatoma auris, may not some day be met by the appropriate antitoxine. My object however in referring to the views of Clouston and to the observations of others concerning intercurrent diseases, especially with fever, in insanity, was to state that the application of thyroid to non-myxœdematous forms of insanity seems at first to have been based upon the fact that one of the observed effects of thyroid was a febrile reaction. It was to induce this febrile reaction that Bruce, who has now reported eighty-seven cases of ordinary forms of insanity in the Royal Edinburgh Asylum to whom the thyroid was administered, first employed the remedy: He says: "I was first led to try the effects of thyroid feeding on the insane after reading the accounts of various cases of myxœdema treated in this manner, where the temperature rose from subnormal to normal and even became feverish, with a quickened pulse rate." In general he desired in certain cases to "increase cell metabolism."

Dr. Bruce says of his first twenty-seven cases that they were not selected. Some were cases who had been in the asylum a long time, others but a short time, but all were either losing ground or making no progress toward recovery.

MARK
PULSE ____
TEMP. ——

Name, Mrs. E. A. M.

Case No. 1 Date, Dec. Jan. 94-5

Dec. 1894 Jan. 1895

DAY OF MONTH.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
DAY OF DISEASE.																																									

TIME OF DAY: A.M. / P.M.

PULSE / TEMP.

170 — 160 — 150 — 140 — 130 — 120 — 110 — 100 — 90 — 80 — 70 — 60

108 — 107 — 106 — 105 — 104 — 103 — 102 — 101 — 100 — 99 — NORMAL LINE — 98

E M E M E M

His first group of cases he classifies as follows:

	Treated.	Recovered.	Relieved.	Not Improved.
Acute mania	4	3	..	1
Chronic mania	3	..	1	2
Acute melancholia	4	2	1	1
Chronic melancholia	2	1	1	..
Syphilitic insanity	1	..	..	1
Alcoholic insanity	1	..	..	1
Puerperal insanity	4	4	..	..
Lactational insanity	2	1	..	1
Climacteric insanity	3	3	..	..
General paresis	3	..	2	1
	27	14	5	8

Of his second series Dr. Bruce does not give the details. Sixty cases are embraced in this series, twenty-four of whom were men, seven recoveries. Of the thirty-five women, seventeen recovered.

Dr. Bruce draws the following conclusions concerning the effects of thyroid feeding:

1. It undoubtedly produces a mild feverish condition, the action and reaction to which is often of considerable benefit to the patient.

2. It is a direct cerebral stimulant.

3. There is a strong probability that at some periods of life the administration of thyroid supplies some substance necessary to the bodily economy.

My own cases have been as follows:

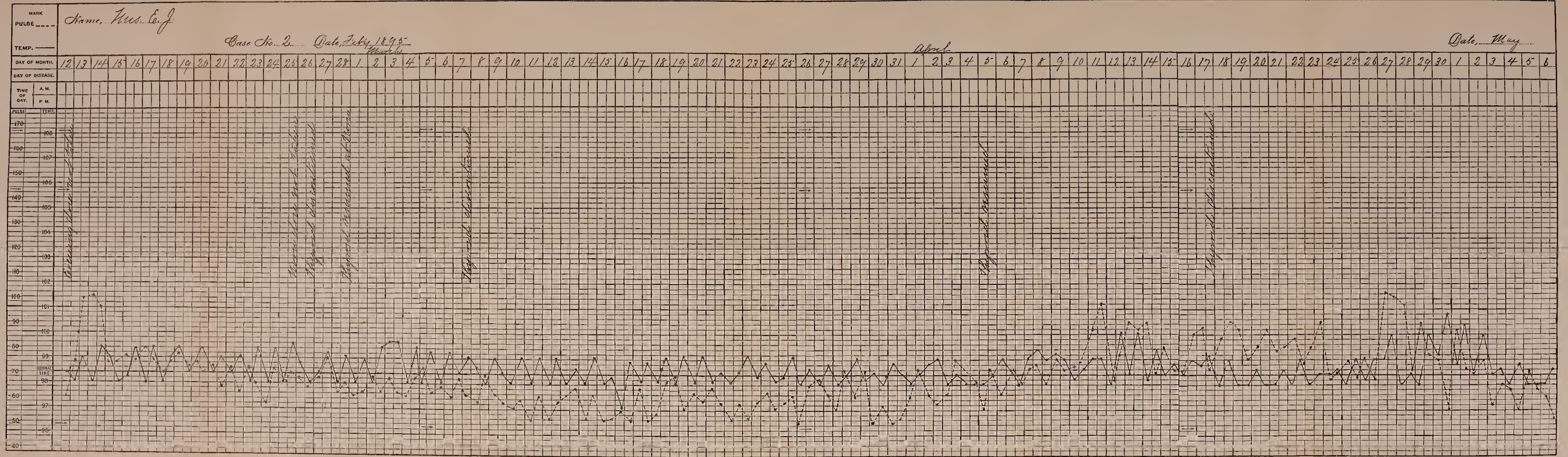
Case I.—Mrs. E. A. M. Aged 51, was admitted to the Sheppard Asylum April 18, 1892, with the following history. Is just passing the climacteric. In 1889 lost a brother with cancer of tongue. While visiting him in January of that year became apprehensive lest she might contract the disease and after returning home was distressed by fears that she had cancerous virus on her hands and clothing. This fear of contamination increased until it involved everything, and she became not only apprehensive of being contaminated, but of contaminating others. Harrassed by these ideas she could not carry out any course of action. She was afraid to dress, to comb her hair, to sit on a chair, to ride or walk in the street. For eight months before admission she had not voluntarily fed herself through fear of touching knife, fork or spoon, but had readily eaten whatever was put to her lips. She willingly admitted the absurdity of her ideas, and discussed them, and the consequences of her inability to act for herself with intelligence. On admission she was thin and anæmic. She became terrorized at the idea of any physical examination, even as simple an act as feeling her pulse, but willingly

admitted that her terror was unreasonable, and that it was a necessary diagnostic measure. She was told that she would be expected to sit at the table with other patients and to take her food in the ordinary way, which she did from the first. Under iron and strychnine, liberal diet, and a certain amount of so-called moral treatment, this patient got the better of many of her ideas, but never to the extent of being able to do without the guidance of a nurse in dressing, bathing, etc. She often stood about the wards or grounds days at a time from a fear to sit down. She would not shake hands and could not be induced to turn a door knob to open a door. On December 17, 1894, her condition is noted as follows: General condition fair, appetite good, sleeps well, bowels regular, urine contains excess of urates, otherwise normal. Ideas of contamination remain as strong as for some time. Recognizes their absurdity, but cannot throw them off or cease to be controlled by them. In other matters shows no mental failure or disturbance. Pulse 76, temperature normal. December 22d: Pulse and temperature have been observed for five days. Temperature has remained normal, pulse varying from 68 to 76. Treatment with desiccated thyroid commenced. Five grains in capsule given three times daily. Nothing was said to the patient concerning any effects liable to follow the remedy, nor were any ideas of any possible change in her fancies suggested to her.

On December 27th the patient's condition was as follows: Pulse, full, soft, 96, temperature 101 2-5°. Respiration slightly increased, but free and regular, considerable nausea and repugnance to food. No change observable in skin or glandular system. Urine high colored, still contains excess of urates. Patient feels better when sitting up as when lying down she has sense of great fullness in head and pain in the vertex. Pupils are slightly contracted but react normally, conjunctiva injected, pains in limbs. Does not object to be handled, says she feels too badly to think about her fears. Thyroid treatment discontinued until 31st. On the evening of January 3d, so great was the nausea that the evening dose was withheld. On the 4th, nausea again appearing thyroid treatment was temporarily discontinued, and on the 9th again abandoned for the time. On January 23d, two weeks after discontinuing the treatment the patient appears much changed. She sits in any chair, plays cards, shakes hands when requested, permits the physician, who informs her he has just visited and had his hands on a very sick patient, to examine her head and hair freely, she having remarked that recently, since taking the capsules, her hair, which had been harsh and dry and difficult to keep in order, was much finer and softer. She does things which she has not done for more than four years and says she does not now have the constant fear of contamination. Although she still refuses to be weighed it is evident from her appearance that she has in the last two weeks gained in weight. During the thyroid treatment she evidently lost weight.

February 15th, weighs 121 pounds. Has been mentally at a standstill for some weeks, has not gone back.

March 9th, weight 121½ pounds. Thyroid commenced, five grains three times a day. March 14, complains of pain in her limbs, with a tendency to "yawn and stretch." Not as much nausea as during previous use of thy-


MARK
PULSE ----
TEMP. ——
Name, Mrs. E. J.
Case No. 2. Date, July 1895
April
Date, May
DAY OF MONTH.
DAY OF DISEASE.
TIME OF DAY.
A. M.
P. M.
PULSE
TEMP.
NORMAL LINE

roid. March 22d, dose increased to ten grains three times a day, temperature subnormal. April 1st, thyroid discontinued three days ago as patient was losing flesh, and seemed quite uncomfortable. Says she feels much more hopeful. April 15th, is gaining in weight, says she can overcome her fancies much easier. Kissed her husband recently for the first time in four years. Has been heretofore afraid to do so.

During the spring and summer this patient remained quite comfortable, able much of the time to put aside many of her fears, but she still yielded to several. In the early fall she seemed to be passing more completely under the control of her morbid ideas and to be more melancholy.

On November 12th, 1895, a blood count showed 5,187,500 red, 6,250 white corpuscles, hæmoglobin 82 per cent. November 13th, grains v of Burroughs & Welcome's tabloids of thyroid given b. i. d. November 19th, dose of thyroid doubled. November 29, grains x three times a day and then discontinued. During this treatment there was little nausea and much less discomfort than before. There was, however, loss of weight. December 2d, blood count showed 4,759,000 red corpuscles, 12,500 white, hæmoglobin 78 per cent. December 4th, seventy-five grains were given in three doses, the patient being kept in bed. This was followed by a much greater improvement in her mental condition. December 17th, one hundred and five grains were given in three doses. The improvement was not so marked apparently. January 9th, blood count showed 4,687,500 red corpuscles, 12,500 white, hæmoglobin, 80 per cent.

Case II.—Mrs. E. J. Aged 47, married, was admitted to the Sheppard Asylum December 12th, 1893, in a noisy and excited state, with delusions of self-importance and hallucinations of sight and hearing. She also had both visual and auditory illusions. About a year previous to admission she had passed the menopause without apparent physical or mental disturbance, but it was evident upon close inquiry that there had been a mental change in the patient dating back to the climacteric. She had been seclusive and suspicious for some time, and her suspicions had developed into active delusions of persecution. She mistook the identity of those about her and became excited and noisy when attempts were made to correct her mistakes. She had slight bronchitis, general atheroma, pulse 60–70, fair volume. Urine contained no albumen, but granular casts and broken down epithelium. An unfavorable prognosis was made. This patient gradually became more and more excited and in a few months was violent and noisy much of the time. She was destructive of clothing, bedding and furniture, and owing to delusions concerning her nurses made homicidal assaults upon them. She constantly mistook the identity of those about her, and was persistently annoyed by hallucinations, both auditory and visual, she lost flesh, her hair became thin, short and dry, her skin parchment-like in feel. At times she refused food. Much of the time she was very untidy in her habits. On January 29th, 1895, this note appears in her case: "Since last note this patient has been almost constantly noisy, destructive and filthy, she eats fairly well, but requires the care of two or three nurses, as she will assault a single nurse." Her pulse continued slow; it was impossible to take her

temperature with any degree of accuracy. At seven P. M. of January 29, 1895, she was given five grains of desiccated thyroid (Parke, Davis & Co.) As she would not take the capsule the dry powder was mixed with her food. January 30th, twenty grains of powder administered in three doses. Patient more quiet; slight nausea. January 31st, this morning the patient is quiet and easily managed. Has increased nausea but no vomiting. The change in her condition which was attributed to the nausea and prostration was very marked. She was willing to do anything suggested, and anxiously asked for something to relieve the "sickness." Twenty-five grains in three doses were ordered. February 1st, patient continues quiet. Ten grains of thyroid three times a day. Slept well for last two nights. No hypnotic given. February 6th, noisy yesterday for a short interval, but not violent, refused two meals, thyroid still continued in ten grain doses three times a day. No nausea. February 11th, patient much more quiet, spent portion of the day among convalescent patients, took her meals in the dining-room. February 13, owing to feeble and somewhat irregular heart action put upon Tr. Digitalis. Advised to maintain recumbent position. Weighs 113¾ pounds. February 18th, Digitalis discontinued. Put upon Mist Ferriet Strychniæ. Patient says she is weak. Is perspiring freely. Mentally is very calm. On the 26th of February owing to some dyspnœa and to increased bronchial irritation the thyroids were discontinued; resumed on the 28th. March 2d, weight 125¾. Is improving mentally, takes increasing interest in everything about her, quiet and ladylike in demeanor. Has desquamation which is pretty general but more marked on hands and feet. Hair is showing considerable growth, has become soft and is easily kept in position. March 7th desquamation very marked. Thyroids discontinued on account of dyspnœa and feeble action of heart.

This patient continued to improve until early in April when she became somewhat excited while out upon the grounds and attempted to escape from her nurse. She had been restless and somewhat irritable for some days. On April 5th, the thyroids were renewed grs. x being given three times daily after meals. The patient was kept quiet and as much as possible free from an opportunity to talk and argue with other patients to which she was much given when a little excited.

On April 17th, the improvement in the case was marked. She was quiet, observant and tolerant of the rights of others, seemed to enjoy reading and games, especially cards, and expressed herself as much gratified at the change which she seemed to recognize. Her weight was at this time 128 pounds. Her skin was soft and healthy in appearance and an abundant amount of hair was appearing on her head.

Improvement in the case continued until her discharge, August 10th, 1895. For several weeks before discharge she was given almost complete liberty to go about as she pleased. Her greatest pleasure seemed to be in working in the diet kitchen, making things for her friends among the patients. Her weight when discharged was 154 pounds, a gain of over 43 pounds in a little less than six months.

Case III.—Miss J. H. Age 23, was admitted October 7th, 1895. Has been depressed about a year, recently growing worse, has shown suicidal

tendencies. Father died of tuberculosis, brother had chorea. Heaviest weight, 115 pounds, now weighs 102. Skin rather dry. Palms of hands moist. Has insomnia. Very emotional when admitted, says everything has gone wrong, and that it was a great mistake coming here. Diagnosis: Simple melancholia. Under tonics, moderate exercise and an occasional hypnotic this patient improved somewhat for a time. On October 15th, she was more cheerful and seemed inclined to occupy herself in light work. Urea, 8,658 gr. to oz. Blood slip stained with eosin-hamatoxylan shows normal red globules and others which appear polyneucleated. Large mononeuclear leucocytes 4,530,000 red corpuscles, white to red, 1,906.

On October 21st, is not doing well, seems to have some idea of great wrong-doing which apparently she cannot get courage enough to repeat. Wants, she says, "to tell the Doctor something," but is unable to do so. Oct. 21st, it is noticed that she has a distinct enlargement of the thyroid gland. Neck measures over the most prominent part 30 cm.; is quite emotional. October 24th, put upon thyroid tabloids grs. v, b. i. d. October 26th, weight, 105¾ pounds. October 31st, is more disturbed mentally. Seems to fear some persecution. Says she is suffering but refuses to say how. Some slight nausea.

November 13, is controlling herself better. Hands less moist. Plays the piano, does light fancy work; much less emotional. November 16th, weight 101 pounds. November 23d, thyroid discontinued. November 26th, blood count showed 4,938,500 red, 15,625 white cells. Hæmoglobin 87 per cent. Appears more natural, says she wishes to go home. From this date this patient continued to improve. She is now cheerful, bright and active, and takes a great deal of exercise in the open air, and though anxious to go home says she wishes to follow the judgment of her physicians about doing so. Weight, 112 pounds. Shows some muscular tremor.

Case IV.—Miss Mary E. B. Aged 40, was admitted September 3d, 1895, with a history of attacks of acute maniacal excitement in 1872, 1883 and 1894. Toward the close of the last attack this patient who was in a private hospital in a western State was unfortunately removed before her convalescence had become thoroughly established. In the midst of the bodily and mental torpor which often follows an attack of mania, she was taken to Washington and taken into society in order to "divert and cheer her up." In consequence she soon became sleepless and in a short time excited. She came to Sheppard voluntarily. On admission she was in a state of excitement, was talkative, restless, and inclined to incoherence. In a few days she passed into a condition of great maniacal excitement. She was noisy, destructive of clothing, untidy in habits, and very difficult to control, but at no time violent in her demonstrations toward her nurse or others. Her great delight appeared to be in tearing things and in making as much noise as possible. As she had a powerful, almost masculine voice, and splendidly developed muscles, she was able to accomplish both. This condition continued without intermission or alleviation until November 15th, when it was decided to try the effect of thyroid medication. Owing to her excited state it was impossible to take this patient's pulse or temperature or to make a blood count. Her weight was 166¾ pounds. She was given grs. v b. d.

of Burrough & Welcome's tabloids and on the 19th the dose was doubled. No effect was observed except perspiration. The pulse in the evening was 90°, temperature, 98.5°. November 21st, thyroid increased to grs. xv b. d. November 27th, perspiring very freely, face flushed. Slight nausea. November 29th, morning dose, grs. xv, two other doses grs. xxv each, very restless and excited. Talking at top of voice in evening and very incoherent. Weight, 164 pounds. Thyroids to be discontinued for a time. December 1st is fairly quiet, but very incoherent and indecent in language. December 3d, somewhat quieter this morning. December 5th, noisy and destructive. December 7th, much more quiet. Asks for paper to read. Weight, 156 pounds. December 10th, talks fairly rationally but is somewhat incoherently. Playing the piano. December 14th, is on the ward with convalescent patients. Talks quite coherently and in a way which shows that she fully appreciates her changed condition. Slightly depressed. Weight, 170 pounds.

This patient has continued to do well up to the present time. She is slightly depressed and disinclined to make active exertion of any kind. She sleeps well and has a good appetite. On January 19th, blood count, 4,937,500 red cells, 12,500 white, white to red 1,395. Hæmoglobin, 68 per cent eosin-hamatoxylan stain shows normal red cell large mononuclear and polynuclear leucocytes containing eosinophile granules. Is now taking a mixture of iron and strychnia.

Case V.—Harry A. Aged 37, admitted April 8th, 1893. Melancholia of several months' standing at time of admission. Second attack, June 1st, 1895. Chronic melancholia. No improvement to date. Began record of pulse and temperature to-day, preparatory to giving course of thyroids. June 6th, 1895, B. & W. thyroid tabloids grains x three times a day. June 13th, 1895, no apparent effect. Eats and sleeps well. Walks out. No digestive disturbances. Thyroid tabloids increased to grains xv three times a day. June 20th, 1895, no effect noticed. Thyroid tabloids increased to grains xv three times a day. June 27th, 1895, has had considerable nausea for past week. Vomited twice, ate poorly. Slight motor agitation, but no mental change has been apparent during the treatment which was stopped to-day. There was a loss of nine pounds in weight during the three weeks under treatment.

December 21st, 1895, patient went home on July 20th, but became more restless while there and was returned on the 26th inst. Present mental condition unchanged. Began thyroid feeding B. & W. thyroid tabloid grains x three times a day for three days. Slight elevation of pulse and temperature. No other symptoms. December 24th, increased to grains xv three times a day. December 27th, increased to grains xx three times a day. Some nausea and loss of appetite and slight increase of restlessness. January 1st, has been taking grains xxv three times a day for past three days. Nausea marked. Some vomiting. Restlessness increased and sleeps badly. Disturbance of peripheral circulation noticed. Capillary congestion of the face and hands. Skin hot and moist. No mental change apparent. There was a loss of five pounds in weight during the ten days under treatment.

MARK

PULSE ----

TEMP. ——

Name, Harry A.

Case No. V Date, from June 1st 1895

DAY OF MONTH.	June 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
DAY OF DISEASE.																														
TIME OF DAY. A.M.	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7									
TIME OF DAY. P.M.	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30									

PULSE TEMP.

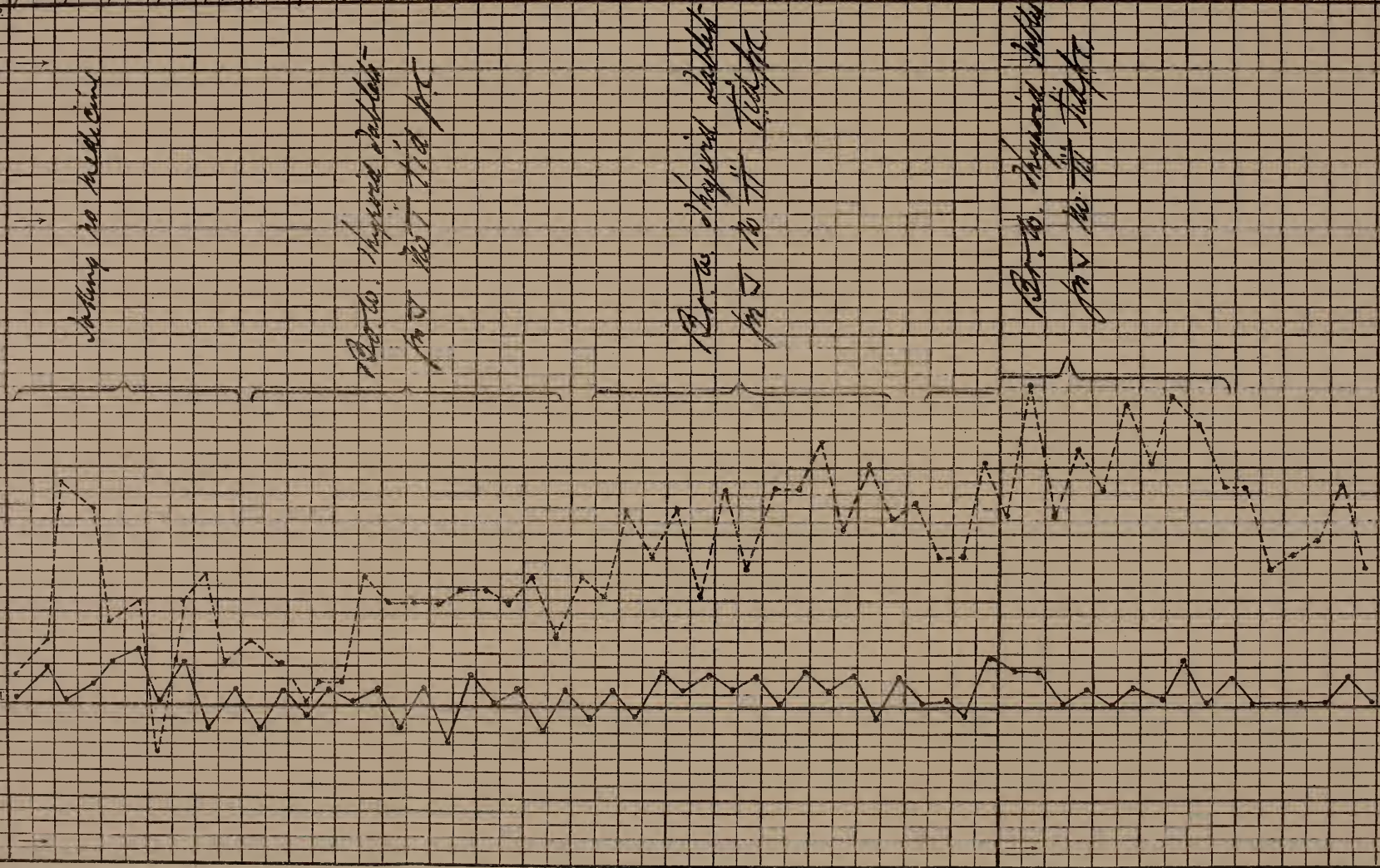
170 — 108 — 160 — 107 — 150 — 106 — 140 — 105 — 130 — 104 — 120 — 103 — 110 — 102 — 100 — 101 — 90 — 100 — 80 — 99 — NORMAL LINE — 98 — 70 — 60 — 97 — 50

Nothing to mention

Rigors

Rigors

Rigors



MARK
PULSE ____
TEMP. ——

Name, Harry A.

Case No. V Continued

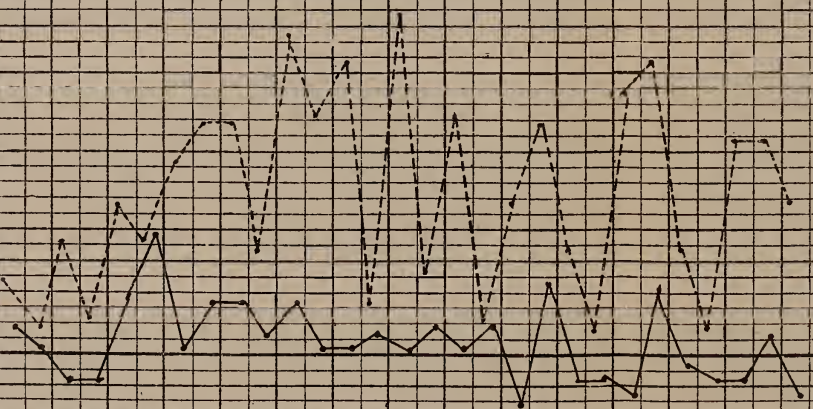
Date from Dec 21st 1896

DAY OF MONTH.	Dec 21	22	23	24	25	26	27	28	29	30	31	Jany 1	2	3	4
DAY OF DISEASE.															
TIME OF DAY. A.M.	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
TIME OF DAY. P.M.	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30

PULSE / TEMP.

170 / 108 / 160 / 107 / 150 / 106 / 140 / 105 / 130 / 104 / 120 / 103 / 110 / 102 / 100 / 101 / 90 / 100 / 80 / 99 / 70 NORMAL LINE 98 / 60 / 97 / 50

12 M. Hydrol sponged to 99 F. 1 P.M. Hydrol sponged to 99 F. 1 P.M. Hydrol sponged to 99 F. 1 P.M. Hydrol sponged to 99 F.



MARK
PULSE ____
TEMP. ——

Name, Howard Age, 30

Case No. VI Date Nov 30 to 1891-

DAY OF MONTH.	Nov 30	Dec 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Dec 21	22	23	24	25	26	27	28	29	30	31	Jan 1	2	3	4	5
DAY OF DISEASE.																																					
TIME OF DAY. A.M.	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
TIME OF DAY. P.M.	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	7 30	10	10 30	

PULSE / TEMP.

170 — 160 — 150 — 140 — 130 — 120 — 110 — 100 — 90 — 80 — 70 — 60 — 50

108 — 107 — 106 — 105 — 104 — 103 — 102 — 101 — 100 — 99 — NORMAL LINE 98 — 97

Nothing to indicate

Boric. Injected into left T. Vein. Left. P.C.

Boric. Injected into left T. Vein. Left. P.C.

Nothing to indicate

Boric. Injected into left T. Vein. Left. P.C.

Boric. Injected into left T. Vein. Left. P.C.

Boric. Injected into left T. Vein. Left. P.C.

Nothing to indicate

Case VI.—H. W. H. Man, aged 28, admitted November 15th, 1893. Dementia of three years' standing, growing more profound. First course of thyroid feeding from December 6th to December 16th. December 11th, B. & W. thyroid tabloids grains v, No. 2, three times a day with no apparent effect except slight disturbance of pulse and temperature. December 14th, tabloids increased to No. 3, three times a day for past three days. No further change noted. December 16th, 1895, has been taking tabloids No. 4, three times a day for past two days. Shows some agitation and motor restlessness. Moves uneasily about the ward and twists about on his chair when sitting down. Skin flushed and moist. No apparent digestive disturbance. Has wet himself twice in the past two or three days, the first time for several months. December 21st, has been taking no medicine for the past four days. Decrease in symptoms of agitation. Began thyroids again to-day, B. & W. tablets No. 2, three times a day for three days, increased by one tablet each dose every three days for nine days. December 29th, 1895, but slight reaction. Has been a good deal agitated for past three or four days, restless and uneasy, appetite poor. Skin hot and moist. Has wet himself several times. January 25th, no change in this patient's mental condition has been observed.

These cases illustrate, it seems to me, the varying effects of the thyroid upon the animal economy. All but case II lost weight while taking the remedy. Case II gained weight from the start. There was not very decided febrile reaction, but judging from the changes in her appearance from the desquamation and the very marked growth of hair, there must have been a rejuvenation or re-awakening of dormant physiological activities, in which the nervous system took a part. Was there added to her circulation something which had been lacking? I am inclined to think there was, but in our present state of knowledge I am not able to say what, or to defend the faith that is in me.

In Case I the physiological effects were less marked and it is possible to liken all the changes which have taken place to those which occur in the insane from intercurrent febrile or inflammatory attacks. In Case III we had some enlargement and probably disturbance of function of the thyroid. It appears reasonable to explain the improvement in this case upon the theory that we supplemented the lagging functions of the gland and helped along its work in the blood-forming or metabolic work of the body whatever it is.

Case IV is of interest from the fact that there appeared to have commenced in this case the change toward masculinity which are sometimes observed in insane women. The voice was harsh and man-like and there appeared upon the cheeks and chin quite a vigorous growth of hair. It will be remembered by all that the thy-

roid is larger in women then in men, and that in adult life much more easily detected. It would be interesting to determine how far in these cases which assume a masculine appearance it had been atrophied. In this case the gland can be made out with difficulty.

The administration of the gland in this case and in Case III, appeared for a time to increase the mental disturbance. In the case under consideration the patient appeared to lose all self-control at times for a few days, and whereas she had usually in her mildest moments been comparatively easily managed by tact, she at this time resisted all care and on one or two occasions attempted violence.

As far as conclusions can be drawn from a few cases, aided by a careful study of its reported action in myxœdema and cretinism, I am inclined to endorse the conclusions of Dr. Bruce. Whether the almost immediate and rather rapid gain following the first loss in weight which has been a feature of these cases, can be solely explained upon the ground of a reaction from the slight feverish condition which was present, and the loss of weight during the administration of the thyroid, I am unable at present to say. It seems to me that the change from loss of weight to gain was too abrupt to be wholly explained on this hypothesis.

No one can be more conscious than myself that the cases which I have reported are altogether too few to warrant any conclusions being drawn. Cases III and IV would possibly have done as well in time under other treatment, but they certainly appeared to be benefited by the thyroid. Case II, I am satisfied, from the remarkable change in her physical appearance, the desquamation, the growth of new hair, etc., owes her present condition wholly to the physiological changes induced by the administration of the gland.

The observations which have been reported have been conscientiously made, and every effort has been taken to exclude from the conclusions which have been drawn all effects of the enthusiasm which some times accompanies the use of a new therapeutical measure.

In conclusion I can but repeat the words of Horsley that few subjects "offer a more fruitful and inviting field of research" than the physiology and pathology of the thyroid gland, and as a corollary, the therapeutical application of discoveries made in these fields.

A FEW CANADIAN CASES IN CRIMINAL COURTS IN WHICH THE PLEA OF INSANITY WAS PRESENTED.

BY DANIEL CLARK, M. D.,
Medical Superintendent of the Hospital for Insane, Toronto.

The writer of this paper has avoided going into details in presenting these cases. He only wishes to state succinctly such facts as he has personal knowledge of and the recital of which might be of interest to those who study medical jurisprudence in relation to insanity.

All the phases of the human mind normal, abnormal or criminal, can have no more earnest students of their varied manifestations than the members of such an Association as ours.

Case I.—Regina *vs.* Hopkins.

Samuel Hopkins was a common laborer, with no education and an intellect of a low order.

He went home to dinner one day and had with him the other boarders, who were working with him, on a new bridge which was being erected near by. The three men left the house together but Hopkins made an excuse to return to it, while the men went to their work. Hopkins went back to his house and there murdered his wife by beating her brains out with a mattock, which stood at the door. A little girl of about four years of age was in the house, whom he did not touch.

The two men who had taken their meals at the house and had worked with Hopkins saw no change in his conduct or language and had no apprehension of his possession of such homicidal intent. After the murder they found him wandering about in a dazed state, near the house, making no effort to escape. He was arrested and put on trial for the killing. The plea of insanity was set up and as he seemed too stupid to plead he was remanded and sent to London asylum in June, 1876, to be under supervision. At the end of three months he was held to be a malingerer by the then superintendent, Dr. Landor (since deceased). He was then sent to Toronto asylum for further examination on Sept. 29th, 1876, by the Attorney General of the Province.

After three months' observation by me, my report to the government purported that he was insane and was at that time a harmless dement. He was employed for over ten years afterwards in our woodyard sawing and splitting wood and was during that time as docile as a child. He always denied killing his wife and was not sure that she was dead. It is possible that he spoke truthfully as an experience of such cases shows that many of those afflicted with homicidal impulses, as for example, the result of attacks of larvated epilepsy, seem to be oblivious of any tragic act. The same is true of those frenzied with drink, who do violent acts and know nothing of them after a sleep. They are astonished when told of their destructive propensities in alcoholic mania.

Hopkins was removed to Hamilton asylum a few years ago, and if alive is no doubt quiet and orderly, and incurable.

It might also be added that he attempted suicide by cutting his throat at the time of the murder. As the years went on his memory became defective. Sometimes he would forget his own name, other times he would forget the number of his children, their names and their sex, and where he resided. He did not remember being in gaol, or in London asylum, and was slovenly in dress and uncleanly in his habits. Of course these may have been normal conditions, as they are in many of the sane, to whom soap and water are not agreeable applications.

Case II.—Regina *vs.* I. C.—Charge Intent to Murder.

The prisoner was a bachelor of about middle age and lived alone on his farm. He had done so for many years and was looked upon by his neighbors as an odd person in his way. Almost opposite to him and across the country road lived a young couple on a farm. One morning in 1877 the young farmer was washing himself from a dish on a bench at his door when he heard a report of a rifle and felt that he was at the same time wounded in the chest. He looked up and saw a puff of smoke issuing from a window in the gable end of his neighbor's house which was a story and a half from the ground. The bullet struck a rib, but did not penetrate the chest. It was a serious wound but not necessarily dangerous. Search was immediately made in the bachelor's house and a newly discharged rifle was found. A box was found upon which he stood and a pane was out of the window sash through which he had pointed his rifle.

At last he acknowledged that he did the shooting, but it was because his neighbor was living with *his* wife and he was determined to put him out of the way. He stated that he heard voices in the field, when he was at work, also in the house; these hallucinations of sounds and voices followed him as he drove along the country roads. They often told him to do many bad things and called him hard names. These were his enemies and among them he counted the man whom he had shot. The jury declared him sane and he was sent to the penitentiary. Further development showed his insanity in spite of the dictum of a petit jury.

There is nothing more farcical in jurisprudence than leaving a decision of sanity or insanity in the hands or minds of many who may never have seen a case of insanity in their lives, especially one of the delusional type. It is a very common thing to find a jury trying a case of alleged murder in which the plea of insanity is set up, the members of which never saw an insane person in their lives. Unfortunately such are of the opinion that expert testimony is of little use and when it is employed an expert witness does harm to the prisoner rather than good, even when the prisoner is insane.

Case III.—Regina *vs.* Mann.—Charge Murder.

Notes on examination of Frederick Mann, who was imprisoned in L'Original gaol on September 11th, 1883, and indicted for murder.

Frederick Mann, aged 19, was born in England, and says he was three and one-half years as baker's help in Gloucestershire. His father and a brother were killed on a railway. His mother, two sisters and two brothers were then alive. He came to Canada about fourteen months before and worked for a farmer by the name of Cook, not far from L'Original, near Montreal. He says he was badly treated by all the members of the family, especially by the father. They slighted him in every way and were continually scolding him. The father often swore at him, when he did not do his work properly. The father threatened to strike him once. He remembers killing the father. They were going to grind axes on the morning of the murder. He, Mann, had one of the axes in his hand, and went to the barn to ask a question of Cook, about the work, when Cook swore at him, and he then in a rage struck Cook with the axe on

the head. Cook was stooping down feeding the pigs at the time. He then went up into the granary and finding the daughter, aged about 32 years, he strangled her with his hand. The mother followed into the granary and he then and there strangled her also in the same way. He put his hand around each of their necks and then threw them down and choked them until they were dead. He then found a second axe at the house and with it he killed one of the boys and struck at the others in the bed. He struck at their heads, but did not know one from the other. He then went away from the house. He was angry at first he said and then could not control himself, as he hated all the family. He told Willie, one of the brothers, to speak to his father, not to be cross with him, for fear he could not control himself and might do something desperate. When he went away from the house he had no fixed idea what he should do. He made no effort to escape as he knew he would be followed, taken and punished for the murders. He thought that had he the same opportunity he would not repeat the crime, but he was so badly treated that he became enraged. He never was spoken kindly to. He got no wages, no good clothing and looked like a scare-crow. It is not true that he tried to break into a desk for money. He had on previous occasions many opportunities to do so, but did not attempt it. He was fed in the buggy house in summer and sometimes in the kitchen. He always had a violent temper, as far back as he can remember. When his anger got up he would use the first thing he got hold of, and often threw dishes from the table at those who offended him. One time he threw a dish at the head of his brother-in-law, when at table, and cut him on the forehead. This happened while he was quite young and before he left home. He was thrown from a baker's cart when he was fourteen years of age and at the time was alone. As he fell he struck the side of his head on the iron steps of the cart, and was stunned but not so as to lose consciousness, for he got up immediately and walked more than half a mile to the house where he had been delivering bread. The people put liniment on the cut. He lost a good deal of blood and felt weak, but knew everything that was going on around him. He has suffered up to sixteen years of age with discharges from the right ear. He had always been a good learner at school. The schoolmaster said "he was sharp," he read up to the fifth standard and this included reading, writing, arithmetic, geography, spelling, etc. He expected to be hanged but did

not care if he were as he preferred it to imprisonment for life. These notes were read over to him and he said they were correct. We discussed together, Tyndall, Spencer, Bradlaugh and their relation to the Christian society and its efforts in suppression of free thinking and infidelity. He stated that Dr. Bucke had kindly sent him his book on "Man's Moral Nature." He good naturedly criticised it, and Walt Whitman's poems. He introduced subjects of his own accord and showed a good deal of intelligence and shrewdness with an excellent memory. When speaking of the successive murders, he exhibited a good deal of emotion. He became pale, perspired violently and trembled a good deal, but seemed anxious to unbosom himself to me. At this time he made no attempt to simulate insanity. In fact he made no such pretense at any time. On this day I had two interviews with him and made up my mind that he was not insane at the time of the murders. He was a man of low moral nature. His will power was weak. He had a violent temper and was vindictive. His whole make up was such as is found among the criminal classes.

When the trial came on his counsel plead "guilty" and he was sentenced to be hanged. The execution took place shortly afterwards. An accomplished pathologist examined the brain but found no disease.

We had here a fairly good intellect, which was moderately educated, but there was not engrafted upon it an ordinary standard of moral excellency. Hence murder in this case was not executed from diseased conditions but from want of development in all the mental area. Passion was strong, will power was weak and the capacity to formulate moral judgments was unformed.

Case IV.—Regina *vs.* Lee.—Murder.

Early in the morning of September, 1882, the housemaid of a hotel at the town of Napanee, of the name of M. Howie, went out to the stable to milk a cow. Shortly afterward she was found lying dead beside the cow, with an axe by her side, and her skull crushed in, evidently by the axe. Only one blow was struck. Lee, the hostler, was not to be found, and he was at once suspected of being the murderer.

After several hours' search he was found wandering in an aimless way in the country, and seemed to be dazed. His clothing was wet and it was found out afterwards that he had attempted

to drown himself in the Napanee River. There were wounds on his scalp caused by his striking his head against a large stone, evidently with the intent to dash his brains out. He made no effort to escape and passively submitted to capture. The scalp was badly torn. The following notes I took at the time.

"Had a first interview with Michael Lee at Napanee jail this afternoon. He talked about being persecuted because of the murdered girl, Margaret Howie. He said there was a lady staying at the hotel pretending to be sick. On one occasion this lady sent him to the store to get a big envelope. This meant that it would be all right between him and the girl. On another occasion this same lady asked him to get for her a dark blind, which signified that she would keep the things about him and his girl dark.

He said that people shot arrows at him, and when questioned as to his meaning, he said that he knew from signs and other things that they were saying venemous things about him. He said one day the girl Margaret Howie went up stairs and washed her feet in salt water, which meant that she had washed away all her bad doings, and was now pure.

Questioned him as to his motive for the act, but though he seemed anxious to tell, he seemed unable to do so, and his attempt was only a mere incoherent repetition of words. He apparently could not talk in a connected manner about the murder for any length of time, and would constantly ramble off in his speech. He appeared to have a very vague remembrance of the killing but had no definite idea of how he did the deed. He manifested no concern as to the result of the trial, and his general conduct and conversation were consistent throughout.

At the end of the inteview he gave an illustration of how people made signs at him by means of a ring. He was cheerful and pleasant when I left him.

Oct. 9. Evening.—Had another interview with Lee this evening during which he said he thought the killing was for the best. He repeated that he did not remember killing the girl at all. In speaking of the signs thrown at him, he said a man would come to him and hand him a ticket for a horse, and poke him with his finger. This meant that they wanted him to tell them that the girl was a prostitute. He saw farmers making signs which were insults to him. He said the night before killing the girl he slept very little

if any; was very restless and could think of things, but would immediately forget them. Said he had no memory of getting the axe or using it.

Does not remember anything, until they were taking him to jail, when he saw blood on his clothes and asked if there was any on his face. Does not remember striking his head on a stone. Says he has no recollection of moving the cow to the other stall. Says that the cow was there to annoy him as people would say she was easy to milk, which signified that that he could easily have to do with the girl. He also gave a number of signs that were thrown at him. On one occasion the sister of the murdered girl wore a particular kind of cuff, and she in passing him exposed one of them, which meant that he was her man, all right. On another occasion she had on a pair of boots trimmed with green like the trimmings on his own, which meant that she would wear his colors and he was all right. On another occasion the girl he killed threw a towel over a rack, while he was in the room, this signified that she would be true to him. On another occasion she took the table cloth off the table and shoved it off on the other side, which meant that she would shove the others off and have nothing more to do with them.

October 10.—Had another interview with Lee this morning. He was not excited and was even cheerful. He repeated much of what he said at previous interviews. He did not remember killing the girl and was sure that people were persecuting him. People kept shooting arrows at him, and he knew in this way that she paid attention to other men. He wished me to state these things to the jury, especially about the arrows and the scandals. He also wished me to state to the jury that his girl sent him to the cellar with some potatoes and told him to bring up a jar of mince meat. He brought up by mistake a jar of pickles, at which she said, 'there it is again,' she then took away from him the pickles. This meant it would be all right between them and she would have nothing to do with the others. During the interview Lee seemed anxious to tell us all he could to make his case clear. He was candid and answered all questions readily and to the best of his ability, but his answers were often irrational. He stated at this interview that the first thing that he remembered after the deed or as he says when coming to himself—was feeling the cold ice water on his clothes and person. He says he broke through the ice, but he does not remember where.

October 11.—Had another interview with Lee this morning. He was dressing for the trial and was as cheerful as usual. He talked about the deed as fully as on former occasions. Talked again of people firing innumerable arrows at him, which on being pressed to explain said were something like hints. He does not yet remember any of the particulars of what occurred on the morning of the murder. Does not remember anything distinctly that occurred. When pressed for further particulars tried to explain more fully but again rambled off. As we were leaving him he went off again about the firing of arrows.

During the interview he said he did not know whether he went to bed as usual the night before the murder, or whether he laid down with his clothes on; thinks he was up and about, but cannot say positively."

The jury brought in a verdict of "guilty," and the charge of the judge was against him. The prisoner's address to the jury changed the opinion of the judge. It was shown conclusively after the trial how insane he was, and his sentence was commuted to imprisonment for life, at the penitentiary at Kingston. He was put into the criminal asylum within its walls, with the other insane patients.

The evidence of the gaol surgeon, the late Dr. Metcalf and myself was given to the court as to his insanity, but it was "Love's labor lost."

Case V.—Regina *vs.* Thos. Aggotte.—Murder.

Thomas Aggotte was, in 1884, 25 years of age, and by occupation was a farmer, and owned a farm near the town of Cornwall, in the eastern part of the Province of Ontario. He could read and write a little, but was comparatively ignorant and very superstitious. He was led to believe in ghosts and such appearances, from his infancy, and had been always convinced that such often put on bodily shape and appeared upon the earth. He would have been a good disciple for the so-called Spirit-rappers. His relatives had seen many unearthly manifestations, so he said, and he had no reason to doubt their word. He was unmarried and living at home. His father and mother were alive. He had one sister and three brothers alive. I was informed that all were ignorant and very superstitious, but there was no insanity in the family.

The prisoner had a farm several miles from his home, on which

was a log house; there was no tenant in it; the farm was large; used to produce hay, and at cutting time he would go and lodge in the house several weeks at a time. A private path led across his field and past the house for the convenience of the neighbors.

His own statement is interesting in view of the method of the killing. He said: "I knew very little of the neighbors; I heard they said the house was haunted. I heard noises about the house, after dark, which I could not account for. At one time they were like blows on the door, this was the night before I killed the woman. On the night of the killing I heard tramping at both doors and at all the windows. At first I thought the tramping was by horses, but after I heard a moan I knew it was not made by horses. I then got up and went out. The axe I took with me was in the house. When I went outside the door, I saw something dark standing about fifteen feet from it. The night was dark and cloudy and rained a little. I could not tell what it was, nor whether it was a man or woman by the dress. I said to it: 'Who is that?' I got no answer; I then said, 'What is your name?' and got no answer; then I said, 'Clear out of this, you old devil; you have been round here long enough.' There was no reply. I then struck it with the axe. I could not see what was on the head, and I was quite sure it was a ghost.

I had an uncle who was pulled twice out of bed in this house by ghosts. He also told me, that another time he saw something strange in the path, and tried to hit it, but he missed it. I believed what my uncle said. My father told me that one night when he was alone in my house, he heard strange noises, and advised me to burn down the house.

I thought the ghost I struck was that of Michael Donovan, he lived in that neighborhood, about a quarter of a mile away, and died about six months before this time.

When I struck it, the time was about 10 o'clock P. M. I was very much frightened, and did not consider that a ghost had no substance. I struck it twice and could not help it, but both times the figure was standing. It gave a queer sound after I struck it first, but I did not hear any sound after the second blow. It then fell but I did not go near it. I ran to the nearest neighbors as fast as I could and was afraid it was following me. I was the first that told anything about it to Patrick Manly, who was living across the road." He told the Manly family it was a ghost he had

struck, and asked them to go and see it, if it was still there, and showed the way.

A week before the killing a man told the prisoner that about a year before he was passing near by the house after dark, and that he then saw a big black thing in the road. He went over the fence and was so frightened that he took shelter in the house all night, with a man who was living there at the time. Different other parties had told him about uncanny things having been seen about the house, especially after a woman had died in it some time before.

He had a young brother with him the night of the killing, who remained in the house.

These incidents are recited to show that Aggotte's mind was saturated with superstition as to supernatural visitations of the departed. And there is no doubt he was terror stricken but not paralyzed as many are in this condition.

Some minds show unusual aggressiveness in fright, and are blindly impelled to fierce assaults when being in fear and apprehension of an indefinite danger.

The person he killed was an elderly woman 62 years of age of the name of McFadden. She was somewhat decrepid and stooped when she walked. She had been at a neighbor's and was on her way home in this path across Aggotte's farm. She was seen by him as she was passing the house, and possibly moving slowly in the dark, as she had to use a cane in walking.

He was not acquainted with the deceased woman. The relatives of the murdered woman knew the prisoner but slightly and until the night of her death he had never spoken to her. There was here no "malice aforethought" nor any motive for the deed, beyond the impelling power of superstitious fear. The counsel for the defense thought of setting up the plea of "transitory insanity," but I urged upon him the weakness of such a defense, not being a believer in such a form of mental disease.

The result was that the jury acquitted the prisoner of the crime of murder with which he was charged, and held that the killing had in it no element of culpability—when all the circumstances were taken into account.

Case VI.

John Calvin Rivennes was about 18 years of age in 1886 when he was tried for the murder of a mate at Berlin, Ontario.

The two young men were working with a German farmer. The prisoner left the farmer's employ a few days previous to the murder and returned on that day for his trunk. He went away in the afternoon, but after his departure the remaining boy could not be found.

After a good deal of search he was found dead on the barn floor under a quantity of chaff with a fractured skull. A round cord-wood stick was found near by on which was blood and hair which was no doubt the weapon used to kill.

Rivennes was suspected and pursued. He was found making his way out of the country and sent back for trial. The insanity plea was about to be set up but after the writer had examined the accused he stated to the barrister defending the prisoner that he thought the plea could not be successfully sustained. This plea was not set up as there was no evidence of mental unsoundness in the prisoner, and there was no proof except circumstantial, and that of a weak nature to prove the charge.

A few of my notes taken at the time were as follows: Examined J. C. Rivennes on April 23d, 1886, in the gaol at Berlin. I spoke to him of his early studies in England and he gave me very intelligent answers. He was fond of chemistry but cared little for classics or arithmetic. I examined him on experimental chemistry of which he had a slight knowledge. He told me he got burned on one occasion in attempting to produce oxygen from chlorate of potash. I found that although he had a knowledge in a general and superficial way of a good many studies, he was not thorough in any one of them.

He was an only child. His father died when he was at school. He did not seem to have any feelings about his relations not even in speaking about his mother. He was of a retiring habit and cared nothing for company. He read a good deal in a general way, but on examination I found his knowledge of the contents of such books as were on his table was very superficial. From his own account of himself he always has been of a vacillating disposition and has been deficient all his life both in discretion and judgment. He belonged to that large class which lack tenacity of purpose and never succeed in life, because of fickleness. There was a substratal defect to which were added bad habits as is usually the case. He was slim and had a small head, asymmetrical and flat at the top.

The jury brought in a verdict of "not guilty," not because of insanity, but because of the doubt as to his being the murderer.

He went to the United States afterwards, and news came back of his having been arrested, tried and convicted for some crime, but the particulars never reached me. Being young, plastic and easily influenced, with no one in this country to take more than a passing interest in him, the tendency would be downward, towards the lapsed masses and crime. Such men never learn from experience.

Case VII.—Regina *vs.* W. H. Harvey.

W. H. Harvey of the city of Guelph, Ontario, was tried for the murder of his wife and two children on March 26, 1889. He purchased a pistol in the city and went back to his own house and shot dead the three members of his own family, some in one part of the house, and some in the other. After going by gig and rail in a roundabout way, he reached Toronto in the evening of the day of the tragedy, having made an appointment to meet his son, who was employed in that city. The son at this time knew nothing of the tragedy. The father invited the son to sleep with him that night at one of the hotels. In the meantime the locked house at home had been broken open and the dead bodies were found. Harvey was arrested in Toronto on the street, walking with his son. It is fairly presumed that he intended to kill the son, and then himself during the night.

It was proved at the trial that he had always been an affectionate husband and father. He was a proud man and very honorable in all his dealings. For the previous six months his books in the establishment in which he was employed were found to be incorrect. The most of the errors were in his favor, but some of them were against himself. He had no quarrel with his family, and there was no evidence of "malice aforethought" anterior to the tragic deed. The uniform testimony of friends, neighbors and relations was, that he was kindness personified, except at stated times.

It is worthy of note, that his surviving son as well as those who were visitors and intimate with the family, said he had days in which he was peevish, morose and taciturn. His little children knew these times and kept away from him when in this condition. This state of mind only continued about a day at a time, but had existed intermittently for years.

The specialists who were called on the trial were unanimous as to Harvey's insanity. They were Dr. Bucke of London asylum, Dr. C. K. Clarke of Kingston asylum, Dr. Lett of the Homewood Retreat, the late Dr. Workman and the writer.

I certified that I believed that he was afflicted with nocturnal epilepsy of the larvated or masked form and that under the influence of an attack the homicidal propensity had manifested itself. A verdict of "guilty" was rendered and he was hanged accordingly. It was said that he was medically insane, but not legally insane and therefore responsible. The fine spun distinction was worthy of legal metaphysics.

The clergyman, who was his close companion to the last, stated that up to the night and during the night before his execution he had delusions and hallucinations which could not be of any use to him, if pretended. The fact is, he never made any pretense to be insane and courted death in any form. The usual intense feeling in such cases existed in the neighborhood and doubtless affected the jury to some extent. It is so natural for us simply to look at the tragedy and give only secondary consideration to the perpetrator of the deed. The more atrocious the deed the less sympathy for the chief actor. The mind loses its judicial tone and is carried away by a spirit of revenge or at least with the feeling of the avenger.

Strange to say, if a mother kills her children even if she includes her husband, the public sentiment is very much modified in her case under the impression that when the maternal instinct is extinct, there must be insanity, but if a father is the actor the paternal instinct is not taken into account in estimating the degree of guilt.

Here was a case where a loving and affectionate father, who had no difficulties with any members of his family, and who was always anxious for their welfare, suddenly developed homicidal mania and carried out his design with that coolness and deliberation which is so characteristic in the majority of such cases, yet no mercy was shown to such a man who doubtless forgot the whole terrible manslaughter or at least remembered it as a hideous dream or horrible nightmare. This is often the case with this class of epileptics.

Case VIII.—Regina *vs.* Louis Riel.

Ten years have now elapsed since the last Northwest rebellion. The strong feeling engendered naturally during the deplorable

break-out has to some extent been greatly modified by time in Canada.

Such being the case, it may not be out of place for me in connection with the subject of jurisprudence to say a few words in respect to Louis Riel who was tried and executed for high treason as the ostensible leader of two rebellions.

Although about nine years ago I gave to this Association a short account of Louis Riel, whose name is now associated with Canadian history, yet this monograph would be incomplete without a short statement of this case, which will be new to a large majority of the the members of this Association. The older members will also find new material in this re-written life history of this delusional man in our Northwest.

The career of this man was remarkable and it was my duty as one of the witnesses at his trial at Regina in 1885 to examine into his life's history as much as possible.

I was assisted greatly in this respect by his relatives and by the accomplished Archbishop Tachè, lately deceased, of St. Boniface, Winnipeg, who placed in my hands a number of letters written by Riel when he was a young man at school in Montreal. I also had interviews with halfbreeds who participated in the rebellion on both sides in the conflict. I have verified all I have here written.

Riel was the son of poor parents, and was born near Winnipeg. He was bright as a lad and apt to learn. As he was a piously inclined young man, Archbishop Tachè sent him to Montreal, to study for the priesthood. He had not been long in that city before he attracted the attention of a wealthy French Canadian lady, who took a great interest in him, and freely furnished him with pocket money. When he was about seventeen years of age, he began to act very strangely, and to write letters to the Archbishop of a boastful and presumptuous nature. I was privileged to examine and read a number of these, and saw for myself in Riel's handwriting, egotism and delusions of greatness cropping out.

For example, he wanted great sums of money to start missionaries, of which the Lord told him he was to be the ecclesiastical head. He believed himself to be divinely endowed for such a work as a great apostle.

So full were these letters of such monstrous demands, and of such hair-brained projects that the Archbishop saw he had not the

judgment and discretion necessary for a priest to possess, so he sent for him to return home.

Before his return he was guilty of some fantastic tricks in Montreal. He entered a strange gentleman's house, and proclaimed himself a second Loyola, about to start a mission to the heathen and demanded a large sum of money to enable him to accomplish his purpose. He was summarily ejected from the house.

He made the same demand of his benefactress, and alarmed her by his vehement manner, as well as by his strange conduct. He accosted several gentlemen in the street and made the same demands. These thought he was under the influence of liquor, as he was unknown to them. Riel was however, all his lifetime a teetotaler.

About this time he wrote to his poor mother, at St. Boniface; (she was at this time a widow) demanding her to sell all the chattels she could, and meet him with the money at St. Paul, Minnesota, U. S. A. The old lady having unbounded faith in her son and in his ability, did as he demanded, and started with a Red River pony and cart for St. Paul.

There was no railroad in those days, and as the distance was 400 miles over the prairie, it took her about three weeks to make the journey.

When she reached that city, Riel was not there. She tented on the prairie for over a week, and as he had not put in an appearance, she sorrowfully started on her return journey. In the meantime Riel had not left Montreal, and did not do so for many months afterwards, but was quiet and moody at these times, thinking himself badly used, and even persecuted, because of his failure to raise funds for his great undertaking.

At last, he was sent back to Winnepeg, and for a short time was comparatively quiet. His influence was great among his neighbors, as he was constantly addressing religious meetings, and being intelligent and eloquent, both in French and English, he easily swayed the more ignorant of his countrymen. I was told by those well qualified to know, that he was an inveterate masturbator.

About this time the great Northwest was transferred to the Dominion Government by the Hudson's Bay Co. Apprehension of losing many of their rights by this transfer was awakened in the minds of the more than 40,000 halfbreeds, then farmers, hunters and traders in this vast territory. The presence of surveyors terrified them, and in the dread of expulsion and expatriation Riel

cunningly saw his opportunity to come to the surface as a leader. The spirit of unrest in this stormy petrel of the Great Lone Land was aroused, and with hot-headed eloquence he excited the half-breeds to armed resistance. Hon. William McDougall, the newly appointed Governor, with his staff was stopped at Pembina on the U. S. border.

This overt act was followed by a political organization, of which Riel was president. This arch rebel was now in his glory, he was a ruler of men, and defied Canada and the whole British Empire. He was educated and knew what that meant had he not been blinded by vain glory and lack of common sense. He would have seen how futile such defiance would prove to be in the end. The expedition of General Wolseley is now part of Canadian history. On its approach, Riel and his chiefs fled to the United States. The murder of Scott intensified public feeling very much, more especially the atrocious manner of his death.

Reil told me that he consented to his death, but his council of twelve also agreed with him. This statement was corroborated by one of the council, who was Riel's attorney general, and who was a classmate and room-mate of mine at Toronto University, and also a B. A. of it. He was a native of that country. He fought against the decree going forth to execute Scott, but the suspicion began to fall upon himself, and he was obliged to give way, thinking, that possibly the sentence would not be carried out.

While he was at dinner he heard the fatal shots fired at Fort Garry and from that day he acted no more with the conspirators and was afterwards the means of saving the lives of D. Shultz and Lepine, who were also condemned to death. After this, Riel was returned as member of Parliament by acclamation. He went to Ottawa, signed the roll of members, as required to do, and took the oath of allegiance. His life was threatened and by the advice of his friends he left the capital. He afterwads resigned his seat in favor of Cartier, who was at this time a member of Government.

In the United States he became a citizen of the republic repudiating his former allegiance. He went to Washington and demanded to be sent abroad by the U. S. Government in a consular capacity.

He saw visions when staying at Washington, and was given a divine mission. In obedience to this mandate, he found his way to Montreal. One Sunday while there he entered the Notre

Dame Cathedral and ordered the priests in a loud voice to cease their ministrations as he was a High Priest and would officiate in their place. He was quietly taken out of the church and was supposed to be a harmless dement, for at this time no one knew him. He went to the city of Quebec, and in one of its large Roman Catholic churches repeated the Montreal disturbance. He was arrested and examined by two well known medical practitioners of that city, and declared to be insane in the form of megalomania. He was committed to Beauport asylum and was there for nearly two years. Dr. Roy, the superintendent, told me how troublesome he was. He was in his own estimation a persecuted man and imprisoned by his enemies, who were jealous of him. For a time, Dr. Roy invited him to his own table, but in a short period he got the idea that the Doctor and his wife were among the conspirators against him and threatened vengeance against them and others. He was placed in the refractory ward and remained there for several months; after a time he quieted down and improved mentally, so he was discharged and sent to his family in Montana. He remained there quietly for some time and taught a small school of halfbreed children. Even here he was a conspicuous figure on all public occasions, and held himself up as an expatriated martyr and a coming Savior for his race.

At this time Dominion surveyors began to lay out the country in the neighborhood of Prince Albert, Edmonton, Batoche, and other localities along the banks of the Saskatchewan. Thousands of halfbreeds were located in these and other adjacent sections; many of them were the descendants of two generations who had cultivated the land, built houses and had no idea of being dispossessed of the homes of themselves and what had been those of their forefathers. It is presumed there was no intention to evict them, but some thoughtless persons in connection with the surveyors' gangs told them that after the surveyors had finished the land, without exception, would be sold. These settlers in their simplicity thought that their homes would be invaded and they robbed of what they looked upon, and justly, as their patrimony by right of settlement under the charter of the Hudson's Bay Co. They supposed they would have to fight for their homes and took up arms. Riel, like a raven of evil omen, appeared on the scene when everything was ripe for revolt. In his fervid eloquence he roused his countrymen to a high pitch of infatuation. He now proclaimed himself a

western Pope with headquarters at St. Boniface. He assumed priestly functions, such as baptizing children, establishing a confessional, celebrating mass in Catholic churches and drove the priests away from their missions. He, by proclamation, divided the Northwest into seven provinces to be subject to his sway. The Jews, the Scandinavians, the Jesuits, the Halfbreeds, the Americans, the French-Canadians and lastly the Poles were each to have one. This whole scheme he elaborated to me at Regina with the assurance that it would yet come to pass when he was delivered out of the hands of his enemies, as he surely would be. When he sat down at table in any of the houses of the halfbreeds he had an extra chair put up to it, which was to remain empty as Christ came and occupied it, visible to him but not to others. He often reverentially bowed to it, as if the Saviour were personally present. He saw chariots of vengeance in the fiery clouds and heard omens in sounds at night. He would go out on the prairie at night and speak to some unknown presence. His time was taken up largely in reciting prayers, hurling anathemas at the enemies of his race and prophesying their overthrow.

These and other strange things were told of him by the halfbreeds. It is not then to be wondered at that these simple-minded and ignorant natives looked upon him as a demi-god and almost worshipped him.

Then came upon the scene two cunning but able lieutenants and Indian fighters, viz., Dumont and Dumais. They saw their opportunity in using Riel and his influence to push forward the natives and Indians to open rebellion. They were the real leaders of the rebellion, Riel being the high priest to stimulate action. The half-breeds all agree that Riel did no organizing, took no command and did little beyond exhorting and urging to action. He was the ostensible and responsible head, but his lieutenants were the plotters and real captains of these natives.

During action Riel would go among them holding aloft a crucifix and uttering prayers and maledictions alternately while the others fought and watched and planned and suffered and died. After the defeat at Batoche, he was urged by these friends of his to flee with them, but he refused to go as he knew the Lord would protect him. He was found wandering about in an aimless way by a scout only a few miles from Batoche and quietly submitted to capture.

At his trial he still possessed these delusions of persecution and greatness combined with a good deal of cunning. I examined him thoroughly and put him in a great rage when I told him that his friends believed him to be insane. He stormed up and down his cell and fairly frothed at the mouth at the idea of being charged with insanity. He, the great liberator, to be styled a lunatic! He that had invited Bishop Gaudin of Quebec and Archbishop Tachè of St. Boniface, to take Holy Orders from him as Pope, to be declared an imbecile; he who was to establish a Heptarchy by virtue of Divine right to be tried as a crazy man; he who knew through Divine guidance that he would not be convicted as the hearts of the jurors were in his control, through prayers and supplications, and so he would scorn to escape on that plea and thereby destroy his Divine mission.

In his address to the jury he repudiated this plea and scornfully and sarcastically pointed to his mental capacity—in his address—as evidence of his soundness of mind. He repeated in the dock many of his delusions with a fervor and pathos which produced a telling effect on his hearers and preferred to die rather than to go free under such a plea, but he knew he would go free under a fiat of the Almighty in order to fulfill his mission. The jury brought in a verdict of "guilty with a recommendation to mercy." I might have added that several times during the trial he dismissed his able counsel and was determined to conduct his own case, but was not allowed to do so. Finally he went to the scaffold, in his own belief a martyr and a hero, without flinching, believing that in his death he was fulfilling a great duty which would tell in future ages and that finally he would be canonized as a saint by the church.

I have given this brief sketch of this man who caused so much distress not to speak of loss of life and who of necessity must fill a small corner in Canadian history.

He was a paranoiac undoubtedly, but a mere figure-head in the two rebellions. It is worthy of note that this view has not only been taken by specialists in the United States, but also by well-known alienists in Great Britain and Continental Europe.

It may be interesting to you to know the anomaly which existed in his trial The indictment was rebellion and high treason. In English law this great crime must be tried at the highest tribunal in the land.

1st. Riel was tried at Regina by a stipendary magistrate, only a step upward from an ordinary justice of the peace.

2d. A jury was selected by this stipendary magistrate out of any class of citizens and not in the ordinary way by lot.

3d. There were only six jurymen, although English common law requires twelve.

4th. There were none of his loyal fellow-countrymen selected, although a large number opposed the rebellion, and were present at the trial.

The trial was a fair one to Riel according to the law of the territory, but the statutes therein enacted look strange in an empire which wisely adheres to its primary and fundamental constitution embodied in the Magna Charta and the Bill of Rights.

Case IX.—Regina *vs.* Clark Brown.

This man was the murderer of his father and mother by means of an axe. He lived near the town of Cornwall, on the St. Lawrence River. He was an only son and lived at home on the farm. His father had willed the farm with a few conditions to his son at his death. The father found it necessary to mortgage the farm to pay debts contracted by the family and was about to do so the day after the murder had been committed. The son knew this and saw that if this encumbrance were put upon the homestead his prospect at his father's death would be very much diminished if not entirely obliterated.

The father was killed first and as the mother entered the room while the murder was being executed, he turned upon her and put her to death in the same manner. A little sister of about eight years of age went into the room shortly after her mother but he did not touch her except to carry her down stairs in his arms. He doubtless thought her evidence would not be taken as would have been the case with his mother, hence the killing of her to prevent her evidence being given against him.

He immediately went to a neighbor's house and stated that a strange man had come to the house and had killed his father and mother. After an examination into all the circumstances he was arrested and charged with the murder. The strongest evidence against him was that of his little sister, who gave such straightforward and intelligent testimony as carried conviction to the minds of the jury.

His counsel set up the insanity plea, but after examining the culprit I was convinced he was a pretender and a poor actor as a presumed insane man. When I charged him with his duplicity and showed him how inconsistent his conduct was in comparison with the really insane, he threw off the mask and acted naturally. He was found guilty and was executed shortly afterwards.

His motive for the crime was doubtless to make himself heir of the homestead by bringing about the death of his father. As an only son he was spoiled by over indulgence, became a spendthrift and at length blunted his moral nature in selfishness and love of ease and display.

A FEW DEMONSTRATIONS OF PATHOLOGY OF THE BRAIN AND REMARKS ON THE PROBLEMS CONNECTED WITH THEM.

BY ADOLF MEYER, M. D.,

Pathologist of Illinois Eastern Hospital for Insane at Kankakee, Ill., and Docent in Neurology at the University of Chicago.

To judge from the remarks that were made by several members of the Association on post-mortem pathology, an excuse may be needed for presenting to you several findings without very close comparison with ante-mortem pathology. It may be that the subjects will excuse themselves.

The aim of pathology of the nervous system is, to a great extent, a study of localization. Such it has been and will be for some time to come, and as such it continues to yield remarkable results. As is natural the first question in all diseases is the question, *where* is the disorder? The next question is, *what* is the disorder in the part affected? Physiology and pathology have for centuries had the tendency to change this relation by putting anatomy and localization into a secondary position. You hear of centers in the medulla oblongata, which anatomy did not find as such, and could not verify; but to-day we seem to come nearer a rational insight into the anatomy, and we can trace relations of fiber systems as the bearers of functional connections. It has been anatomy and histology and pathological anatomy that have done the work of exacter localization and exacter study of mechanisms.

That there remains much to be done would be best felt if we should ask ourselves to describe the localization of sensory conduction to the brain, the anatomical and physiological arrangement of the cortex of the hemisphere—the laws of function and vitality of nerve cells and systems of neurons, exceedingly elementary questions, in which we feel that we should know more than is actually the case. The saddest thing would be if we should submit to the idea that we knew enough. It will be our duty to collect systematically whatever may give us a clue for progress and for formulating distinct problems.

There are two points to which I should like to draw your attention to-day. First, there are a few lesions that I wish to mention,

to show what a variety of abnormalities the nervous system of epileptics offers, and how some of them can be used for the investigation of certain problems.

The second is a short study of an observation, dealing more with living pathology, the problem of degeneration and regeneration. I can not do these points due justice because it was impossible to bring all the brains, etc., for demonstration, and because the time allowed would not give me any chance to do justice even to the little things I found. The subjects will receive fuller treatment in a later publication.

So-called idiopathic epilepsy, according to most authors, seems to have an absolutely uncertain pathology, as far as microscopical research goes. Changes are found in many instances, but the great difficulty lies in the decision of what is primary and what is secondary. Among twenty epileptics examined, post-mortem, seven showed distinct lesions, several among which can be incriminated as causative of epilepsy. As they all will be described in a special report, a few only will be selected as an illustration of a few problems.

1. Illustration of a lesion of a possibly teratological character.

Case 112.—A young man of twenty-four, who had epilepsy from his childhood, fractured his skull during a seizure, and died of the consequences of epidural and subdural hemorrhage. Besides the consequences of the traumatism, there were found two small tumors, one of them a small cyst in the cortex of the middle frontal convolution, the other a small (fibrous?) tumor in the floor of the fourth ventricle.

The cyst has a thin wall of fibrillary tissue, lined on its inside by one or two rows of neuroglia cells, similar to those of the central canal of the spinal cord, though not as closely arranged. The cell row again is lined by a layer of coarse and fine fibers (the processes of the neuroglia cells?). It is uncertain whether the cyst is the end stage of a focus of gliomatosis, as described by Chaslin. Its sharp outline would speak against this supposition; it is probable that we are dealing with a special form of gliomatous cyst.

2. Lesions in a case of epilepsy with infantile hemiplegia.

Case 144.—A woman of fifty-six, came to the hospital with what is generally called infantile hemiplegia, characterized by lack of development of the right side of the body. There was a scar attached to a trepanation opening in the left parietal bone. During

life the patient had not shown any symptoms of disturbance of vision; she was very abusive and aggressive, and not closely examined.

The autopsy revealed a large cyst extending from a membranous scar in the left ascending parietal gyrus (middle third), through the basal ganglia, to a large defect in the temporal lobe. The middle part of the fourth and fifth temporal convolutions is completely absent, nothing but a membrane forming the wall of the cavity, that extends all through the hemisphere. For the study of epilepsy and its explanation, this brain would almost be of no value. It would belong in the curiosity shop. But it affords a decision of problems of greatest importance in other lines, and is a fine illustration of the usefulness of the study of such lesions in pathology. The degenerations were remarkable for several reasons: It was expected that the cortex over the cyst would have lost numerous elements, because the white matter of the centrum ovale had so extensively suffered. Further, the corona radiata and crus cerebri, the optic radiation and perhaps the fillet, were probably involved. I simply mention a few of the results of the preliminary examination and the problems connected with them.

The Cortex: Although the wall of the cyst was remarkably thin, the cortex did not show any marked shrinkage over the parietal lobe. The breadth seemed perfectly normal, even in those areas where the subjacent white matter was only one millimeter thick; only the deeper parts of the second layer were much rarefied, the deepest layer hardly affected at all. Conclusion: The cortex is a remarkable center in itself as a relatively independent structure, far more than a mere shunt for in-and-outcoming impulses. Its histological independence explains the wide range of intracortical activity of which the correlates of psychical activity undoubtedly only represent a fraction.

The interruption of the central motor path, the pyramidal tract, is easily understood. In relation to this, we can study in the cortex which layers give off the fibers of the outgoing impulses, because, undoubtedly, the cells belonging to the motor central path must have degenerated. This part of the examination is not quite finished yet.

The next remarkable point is an atrophy of the optic tract. The lesion had interrupted the central optic radiation, and, contrary to the ordinary expectation, had stepped over the primary ganglia on the peripheral system. Further, we find an important point in

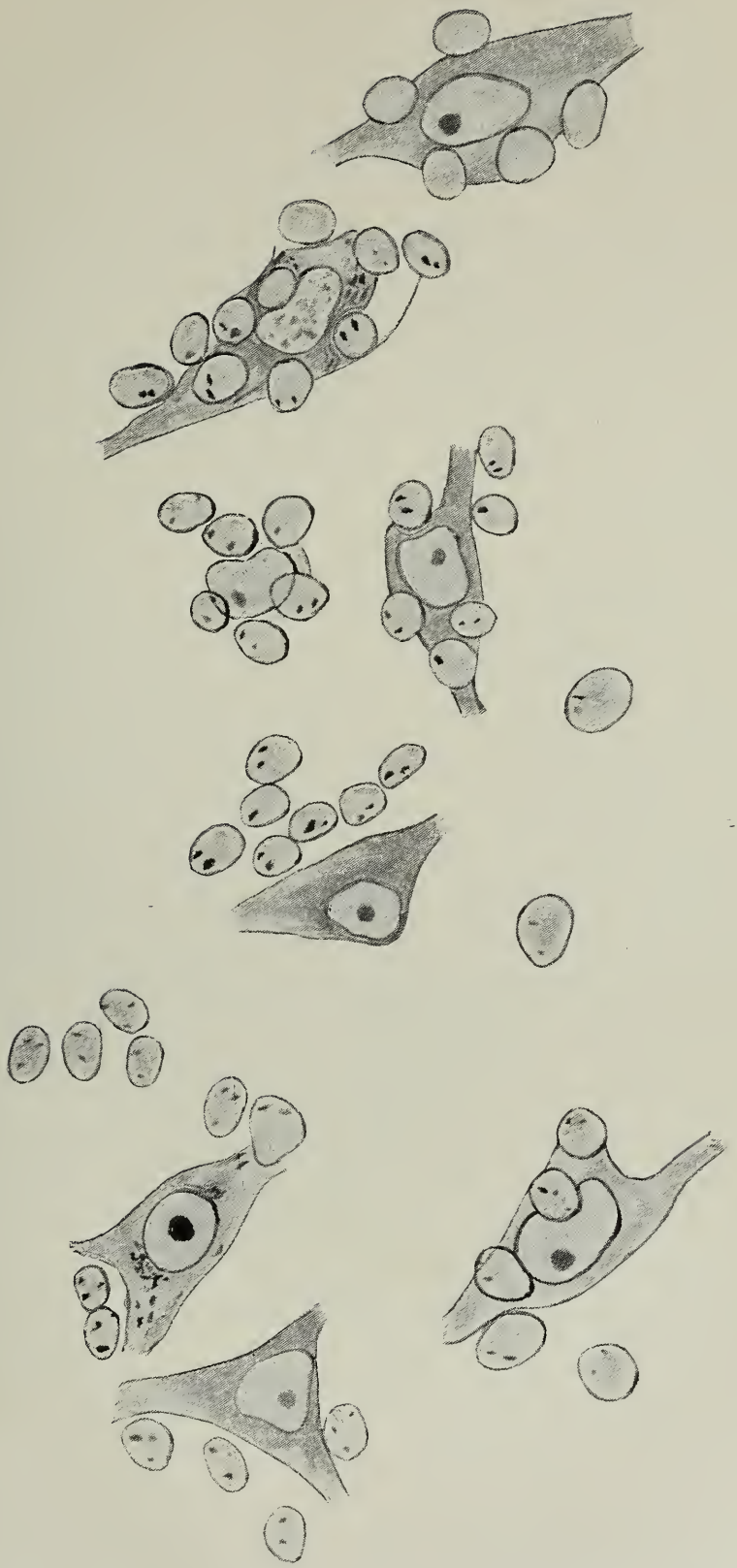


PLATE 1. Cell group from the cortex of the uncus in a senile patient that collapsed suddenly after a period of excitement. Accumulation of nuclei around the cells. Nissl's methyleneblue method.

PLATE 2. Cell group from the cortex of the parietal lobe in the same patient. Partial disintegration of cells.

relation to the question, where do the central sensory tracts run and end? German writers claimed lately that the sensory path—the fillet—ended in the motor area. This case seems to show that this view should be modified, since the fillet can be followed into the optic thalamus, and only the connection between optic thalamus and cortex is interrupted.

It would take too much time to enter fully into the importance of these and other degenerations in this case. We certainly realize that the cyst, in itself, was not half as interesting as the degenerations it caused. I should like to make an appeal here, that you will kindly send such brains for examination to our laboratory in case that they can not be worked out in the hospitals.

3. On examining the cortex of a patient that had died seventy-two years old, quite suddenly, with no other coarse lesion but slight fatty degeneration of the heart and little atheroma, I found a striking accumulation of round nuclei around most of the ganglion cells of the cortex. The condition was most pronounced in the deeper layers of the cortex, and may be described as follows: (Plates 1 and 2).

The ganglion cells show various degrees of atrophy. Many of them seem perfectly normal, others show shrinkage of protoplasm, and others, moreover, deformities of the nucleus. Round most cells there are a number of round or oval nuclei, arranged in groups or single, many of them imbedded in distinct notches of the cell protoplasm. There was a moderate increase of capillaries, and also accumulation of leucocytes in these, but no accumulation of leucocytes in the sheaths of the blood vessels, as in general paralysis.

The condition seemed very peculiar, and I confess I felt first inclined to make it responsible for the restlessness and maniacal excitement that led to the sudden collapse of the patient. However in looking over the literature on changes of this kind, there were two sides of the question found treated very fully. The change had been noticed after typhoid fever, and especially after typhus, and was also produced by overheating animals, and, lately, also by starvation.

In 1875 Dr. Leo Popoff described changes in the brain in abdominal typhus and in traumatic inflammation (Virchow's Arch., Vol. 63).

His conclusions were:

1. In typhoid fever, as well as after traumatic inflammation of

the brain or middle ear disease, changes occur in the brain that may be called inflammatory.

2. They are characterized by a considerable accumulation in the perivascular and pericellular spaces of wandering elements, which may even penetrate the cell protoplasm and produce division of the nuclei, which may also occur independently.

3. In real typhus (exanthematicus) the accumulation of wandering elements and the proliferation in the walls of the blood vessels may become so marked that we obtain the formation of a kind of miliary granulation nodules. Also, Iwanowsky (*zur path. Anat. des Fleck-Typhus*, Budneff's Journal for Normal and Path. Histology, 1876) found in fourteen cases of typhus the same condition, accumulation of round cells, but less division of ganglionic nuclei.

Carl, Duke of Bavaria, found accumulation of the nuclei, to a certain extent, in the normal brain (that of a decapitated criminal, and of another person killed by stabbing). Observation on twenty-two brains of patients with typhoid fever seemed to show that the infiltration was most pronounced in the second week of the disease, and especially in those cases in whom œdema of the brain had been observed.

Duke Carl did not observe division of the nuclei of ganglion cells in those cases. Subsequent papers of Stricker and Rosenthal did not promote the knowledge of the condition much. Blaschko (*Über Veränderungen, im Gehirn bei fieberhaften Krankheiten*, Virchow's Arch., Vol. 83) thought even to be justified to range the findings among the normal conditions. In a later paper, Popoff (Virchow's Arch., Bd. 97) reports on similar findings after poisoning rabbits slowly with chloroform and ether, and after exposing them to high temperature, laying, however, less stress on a probable inflammatory character of the findings.

The most important contribution toward the elucidation of the problem has, however, been furnished by Dr. Lubimow. L. starved a dog for a period of ten days so that it lost from 20 to 30 per cent of its body-weight. Then a small piece of brain tissue was removed by trephining and examined. The animal was fed again and brought to its previous condition. Four, six and one-half, and eight weeks after the starvation period, a new opening was made by trephining and brain tissue examined. At the end of the starvation period the protoplasm of the ganglion cells was much

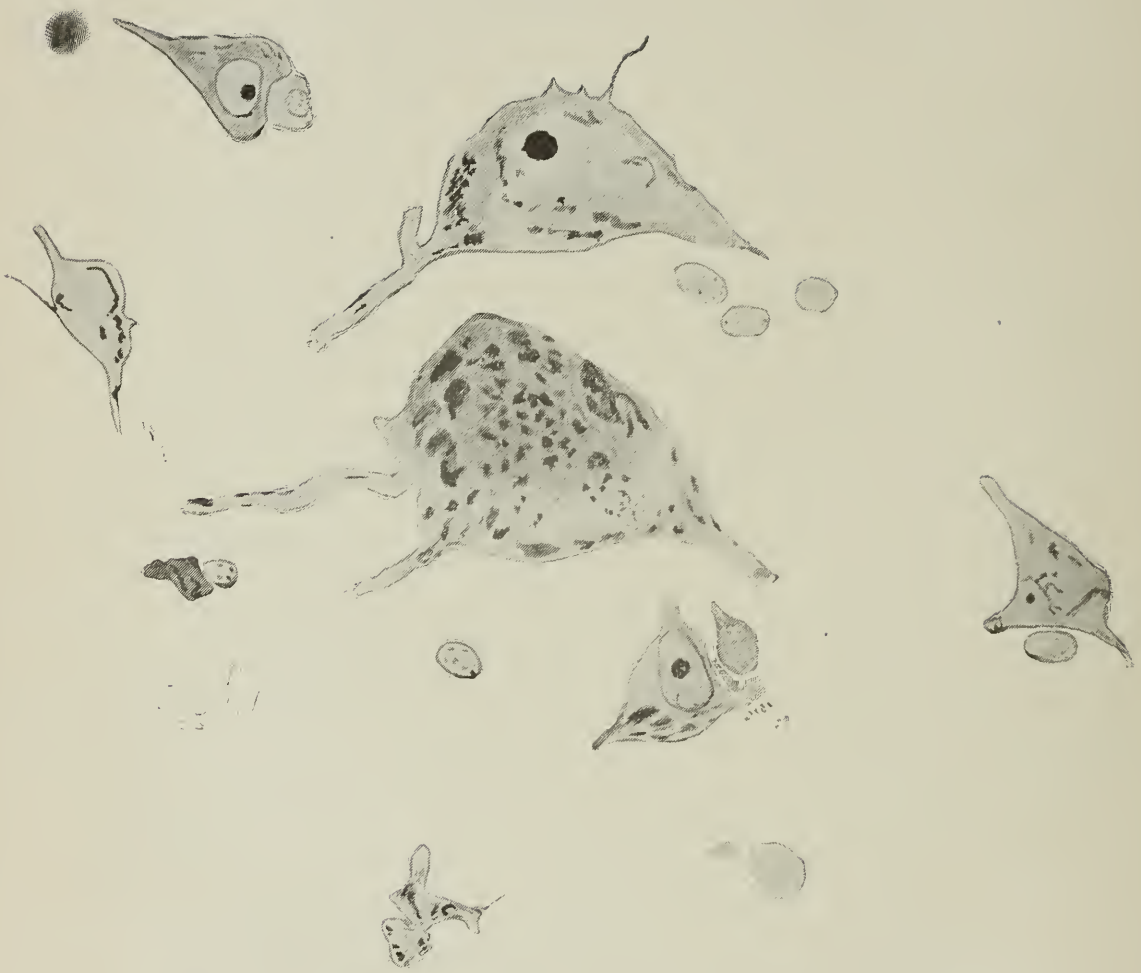


PLATE 3. Cell group from the paracentral lobule in a terminal dement. Advanced disintegration of cells without accumulation of nuclei.

reduced, and the nuclei were badly stained. Leucocytes were grouped around them and in some instances, had entered them.

After four weeks' feeding, the animal had returned to its previous normal condition, but many ganglion cells showed progressive decay, many cells had lost most of the protoplasm, others had perished completely; everywhere leucocytes were found around and also in the cells. After six and a half weeks of refeeding, a finely granulated and deeply stained protoplasm began to accumulate around the nucleus; protoplasmic processes began to form; once, proliferation of a ganglion cell was observed. There were fewer leucocytes around the nucleus, none around the protoplasm.

After eight weeks the processes were still somewhat rudimentary, but in progress of regeneration.

This experiment suggested to me the task of examining the cortex of those who had been afflicted with some wasting disease, and invariably I noticed a remarkable accumulation of nuclei around the cell in these cases, although nowhere as pronounced as in the first one. Continued study will enable us to form an opinion on the relative frequency of these findings. I should not feel ready yet to make any definite statement on this conditon in the insane.

It will be the task of further investigation to ascertain whether the accumulation of leucocytes is purely a consequence of the decay of nerve matter, or whether it is a direct help for the regeneration. That is, we must study how much of the increased number of cells is derived from proliferating blood vessels; how many may act as phagocytes, carrying away effete material, and what share they have in the regeneration of the ganglion cells by entering the protoplasm, etc. I have not been able to find any proliferations of ganglion cells; but if the conditions for such regeneration could be found much would be gained to make the prognosis of alteration of ganglion cells more favorable.

Allow me to use this occasion to mention a few of the problems at least.

We speak of regeneration of peripheral nerves, but for all the ganglion cells we deny a proliferation after birth and therefore regeneration. We are taught that a nervous disorder that can be cured must be functional, that so-called organic pathological processes are irremediable. Again, we are inclined to say that these functional disorders can not be recognized as visible lesions. This is a dogma that deserves to be shaken. In the experiment on the

dog and in patients dying after, and from, acute febrile diseases, or in cachexia, we find noticeable changes that are amenable to cure. These changes are apparently the same as those of fatigue described so ably by Hodge, but they must, of course, be somewhat different, since the ordinary repair by rest is not sufficient to effect restoration. They call for a more active reaction. This state is characterized by the disintegration of the protoplasm, and the nucleus and the accumulation of free nuclei, that can sometimes be found to enter the ganglion cells. Under these conditions the reformation of the cells become possible and sometimes proliferation of ganglion cells is said to have been noticed. In comparing cells with partial degeneration in a terminal dement (plate 3) with those of more acute changes with leucocytosis, one can not help being impressed with the idea that the leucocytosis offers more favorable outlooks, and that the laws of its influence would be worth continued experimental and pathological research. Whether, indeed, the lucid intervals and the rapid improvement of torpid cases after affections that produce the leucocytosis (typhoid fever, tuberculosis, suppuration, etc.) might be due to the fresh regenerative impulse, will be a question worth examining.

DISCUSSION.

C. G. Hill: The thanks of this Association are due to Dr. Meyer for the important scientific paper he has presented. Few of us are aware of the amount of patience and skill required to work out these very difficult problems. I would like to emphasize his suggestion that the study of degeneration, of histological anatomy, etc., would be greatly assisted if the brains of old chronic cases were preserved and transmitted to some institution where they could be properly studied. I think it would be well for Dr. Meyer to explain to us what method he would recommend to us for preserving these brains.

FRAGILITAS OSSIUM, ILLUSTRATED BY A CASE.

BY H. C. EYMAN, M. D.,
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The term fragilitas ossium is applied to that condition of the bony system characterized by a lack of proper nutrition, which may render the bones abnormally brittle (properly called fragilitas), or spongy, soft, and flexible. The object of this paper, however, is not to discuss osseous trophoneurosis in its broadest sense, but particularly the fragility often found in the insane. It is an accepted fact that the bones of persons suffering from certain forms of nervous disorder are abnormally brittle. The pathology is probably as obscure as that of fragilitas in the sane. It is doubtless only an expression of altered nutritive processes. Many different views are entertained by different pathologists. Dr. Blanchard defines it as "a chronic state of osseous inanition."

Gross, in his system of surgery, says "it is the result of disease; in some being soft, in others brittle." The areolar tissue is injected and infiltrated with bloody matter, and the periosteum is thickened, spongy, and congested. Another author maintains that the condition is one of saturation of the osseous tissue with a certain oily matter. The pathological condition is probably similar in some instances to osteomalacia, viz., an increased vascularity of medullary tissue. The vessels become excessively engorged, and in consequence give way, causing extravasation of blood clots, which may be found disseminated through the medulla, intermixed with fat globules, and at times new cell elements, the exact import of which is not at present known or understood. That the true infiltration, such as commonly characterizes inflammation, be present, however, can not be asserted. We are taught that this engorgement is at first central in the medullary tissue, and filling its cells with a gelatinous material, moves centrifugally, extending to the outer portions of the cancelli, the cells of which are gradually dilated, and finally pass into the Haversian vessels of the compact structure.

Agnew tells us that "coincident with this vascular disturbance comes the work of decalcification, which, like the first, extends from

within outwards, the products passing off partly by the kidneys, in the form of oxalate of lime, and forming, in some instances, renal vesical calculi."

By this process we see that the constituents which impart solidity to the structure, viz., the saline, are slowly but surely removed, and in consequence the bone becomes soft and flexible, because there is nothing left except the cartilage, and even this may in turn disintegrate and liquefy. While the actual pathological condition may not be positively demonstrated, yet we are very certain that there is a condition of the bones that predisposes to fracture, and that this tendency is greatly exaggerated in the insane.

You have heard it stated, and by medical men, that insanity does not interfere with longevity. This position is so palpably false that it scarcely merits consideration. While occasionally an insane person reaches an advanced age, yet the average reduction in expectancy of life is from fifteen to twenty years.

By carefully prepared statistics, it has been proven that the average life of an insane person is about eight years. Now the average age of insane persons when admitted to our hospitals is about thirty-eight years. According to the mortality tables of the insurance companies the expectation of life for the sane man at thirty-eight years is twenty-eight years, or a reduction for the insane man of twenty years.

In nearly all forms of mental diseases tending to chronicity, the temperature is below normal, showing the patient is not thoroughly nourished. Now it is but natural to suppose that the osseous structure suffers equally in this innutrition, and if so the tendency would undoubtedly be to fragility. Frequently has the attention of medical men been directed to the very important morbid changes of the osseous system which occur in the insane.

In some cases the bones are soft, yield readily to pressure and produce various deformities. In others the bones are fragile, so fragile indeed that they can be readily broken with the thumb and finger after death. Such cases are of course very liable to fracture during life.

Davey, in 1842, reported six spontaneous fractures of the long bones.

Dickson, Williams, and others have reported cases in which the ribs were found so brittle at the autopsy that fracture could be

readily produced. At different times we have had reports from reliable medical men of the pathological brittleness, softness, or bogginess of bones as presented at the autopsy. It has also been incontestibly proved that persons afflicted with general paralysis, or with other forms of intense cerebral diseases, may sustain severe and extensive osseous or other lesions without manifesting the slightest perception of pain or impairment of muscular activity.

J. P. Gray, while superintendent of the Utica State Hospital, reported among the admissions for a single year, one case of fractured clavicle, one of fractured ribs and sternum, and one of fracture of the arm, all cases of acute mania. He adds that in all of them were these injuries produced without intentional violence, or, in other words, they were not attributable to mal-usage by attendants, but to accident, or self-inflicted injury. In no case did the patient complain of pain or injury, the fact of the bone fracture existing at all being unsuspected by patients or friends till the medical examination was made by asylum physicians. Some of them were wild and boisterous and inclined to fight, moving their arms and bodies in every direction, and complaining of no pain.

James Howden reports an interesting case of mania, followed by hyperæsthesia and osteomalacia. In this patient, who died at the age of forty-eight, it was found upon post-mortem that nearly all the bones of the skeleton were soft and brittle, the bones of the spine and pelvis cutting as easily as cheese.

After examining a great many cases investigators have concluded that "in chronic diseases of the central nervous system, especially in insanity, the ribs are apt to undergo very considerable morbid changes, which give rise to increased brittleness, and hence predispose the bones to fracture from slightest violence." The pathological condition may be a rarefying osteitis, a condensing osteitis (sclerosis), or it may be an osteomalacia.

Our pathology teaches us that the rarefying osteitis may result in suppuration, necrosis, or caries. It is characterized by the formation in the marrow spaces, or beneath the periosteum of new, very cellular and vascular tissues, under whose influence the substance of the bones is absorbed. Condensing osteitis consists in the new formation of bone in the walls of the marrow cavities. This may be primary, or secondary to rarefying osteitis. Osteomalacia consists in the softening of fully formed hard bone tissue by

the removal of its organic salts. Its cause is not known. Microscopical examination shows that the decalcification occurs first in the periphery of the Haversian canals, and in the inner layer of the walls of the marrow spaces.

That there are peculiar changes in the osseous system consequent upon diseases of the brain and spinal cord is beyond question; that the pathological condition is obscure is equally certain. There may be trophic changes, due to a disturbance of the sympathetic system, or it may be more closely connected through the posterior column of the spinal cord.

A. B. (æt. forty years), admitted to Athens State Hospital, violent and raving. Sheriff stated that several times on the way to the hospital he had fought viciously, and, while they had overpowered him, yet no undue force had been used. Patient was very much excited, swinging his arms, *a la* Sullivan, and apparently had full and free use of all his physical powers. He complained of no pain, and the existence of fracture was unsuspected until the assistant physician made his usual examination of new cases. It was then ascertained that four ribs were fractured, and at different distances from the manubrium sterni. This was on Friday. On Sunday morning following patient died, having had no attack of violence after admission to hospital. Autopsy revealed the fact that not only were the ribs fractured, but they were brittle as pipe-stems, and that one fractured end had lacerated the pleura and lung tissue to a very considerable degree. This patient at no time complained of pain, nor did there seem to be any interference with muscular action.

L. V., admitted to Toledo State Hospital July 12, 1890, suffering from delusional melancholia. No special features were manifest at the time of admission. He was placed in one of the cottages, and assigned to a bed in the dormitory where about twenty patients slept. Some time during the night of July 13th, becoming restless, he arose and for a time walked aimlessly about the room; finally stopping, he leaned over the bed of another patient, who being thus suddenly aroused from sleep, failed to note that the man was harmlessly gazing at him, and throwing off his covering, he placed his foot against the chest of Mr. V., and with considerable violence pushed him away from the bed, not so violently, however, as to throw him down. Mr. V. went back to his bed, and lay quietly down until morning, when he arose with the other patients, dressed

himself, and walked without assistance or apparent effort to the congregate dining hall, probably an eighth of a mile distant. About the middle of the day he became very restless and noisy, and attacked the attendant, who being alone on the hall, had to use some force in subduing him. It was denied, however, that any undue force had been applied. He neither kicked nor struck him, nor placed his knees upon his chest when on the floor. The supervisor was ordered to remove the patient to the building in which disturbed patients were treated, and immediately did so, Mr. V. resisting some, though not fighting. When upon the veranda leading to the disturbed ward he broke away and ran considerable distance before being overtaken. In his running he showed no evidence of soreness or illness. When overtaken he gave up and returned with but little struggling. Very soon after being placed in the ward, however, he complained of being sick, and a physician was notified and patient put to bed. Upon examination we discovered several fractures of the ribs, and ordered his immediate removal to the hospital. He sank rapidly, though he complained of no pain. He died on the evening of July 17, 1890. Autopsy revealed a remarkable state of affairs.

Autopsy held upon the remains of L. V. July 18, 1890, 10.30 A. M., by hospital staff and coroner. Thirteen hours after death, rigormortis well marked. Inspection of body. Slight abrasions on left side of face, on neck, on each hip, right knee and left ankle. Slight bruise on left elbow, breast and sides discolored.

Upon opening chest, muscular tissue beneath skin was found to be congested. Upon right side the 3d, 4th, 5th, 6th, 7th, and 8th ribs were fractured, the 7th being broken in two places; first fracture about two inches from sternum, and second, one inch from first. Upon left side the 3d, 4th, 5th, 6th, 7th, and 10th ribs were found to be fractured. The 3d, 4th, 5th, and 7th ribs were fractured in two places, the second fracture in each instance being almost beneath the axilla.

The 6th rib was fractured in three places—first, about one inch from sternum; second, about four inches from sternum; and third beneath axilla. The 10th rib was fractured at junction of hypochondrial cartilage. Sternum broken below juncture of 4th and 5th ribs, an exostosis projecting three-fourths of an inch under first rib, right side, two inches from sternum.

A clot in right lung in pleural cavity. Heart, a chicken-fat clot

in right ventricle, otherwise normal. Lungs, lower lobe of right lung wounded at edge beneath 5th rib. Left lung adherent to diaphragm at lower and posterior portions, showing former pleurisy. Pleural cavity filled with blood.

Calcareous deposits in bronchi. Hypostatic congestion. Stomach congested. Liver slightly enlarged. Kidneys, fatty deposits and probably pus in pelvis of right kidney; fatty deposit in pelvis of left kidney. Bowels and mesentery infiltrated. Rectum filled with hardened faces.

Nineteen fractures around the chest. The ribs upon removal proved as brittle as pipe-stems. The number and location of the various fractures could not possibly have occurred in healthy bone except by running the patient through a threshing machine.

The coroner decided, after taking all the obtainable evidence, that patient had not been abused, nor had he suffered from undue or unusual violence, but that the fractures were due to the obscure disease known as fragilitas ossium.

DISCUSSION.

Dr. C. G. Hill: I have seen it claimed that these conditions, in the majority of instances, were due to the presence of syphilis or to the treatment to which the patient has been subjected for the cure of syphilis.

Dr. H. C. Eyman: It was not produced by syphilis in either of these cases. Drs. Tobey and Richardson both are acquainted with the cases.

Dr. Daniel Clark: The practical point in these cases is that attendants are often accused of abusing patients and breaking their bones when there has been no violence, and it is a good thing to know that the fragility of the bones of the insane is such that fracture can take place without the exercise of violence. The increase of earthy matter in the bones of the insane is such as you find in elderly persons in whom fractures are easily produced. It is a good thing for the public to know and for the ubiquitous press to know that the existence of fractures in the insane does not of necessity prove that violence has been used by attendants. Low vitality produces this condition. For the same reason, we find in the insane, that hard pressure or a slight blow on the flesh produces a blackness of the part such as would not be the case in the sane under like conditions.

Dr. H. A. Tobey: Dr. Eyman did not tell all the story. In the case that he reports at the Toledo Asylum, the man was a considerably larger man than the attendant. He was about 60 years of age, a robust laboring man, and the attendant was much smaller. In the struggle the attendant had with him, the man was determined to jump out of the window. The attendant held him for a while until another attendant came along and hearing the struggle immediately called the supervisor. It took the three men to take him back. He got hold of the doors and everything he could reach until he was finally put in the room. There were no fractures discovered until two or three hours afterwards when his breathing seemed difficult. Of course the extent of the fractures was not surmised until the autopsy was made. His son was sent for before his father died. We had a coroner's inquest and made a stenographic report of everything. All the patients in the cottage, the attendant and everybody were exonerated from all blame. His son, after the body was taken home, had some physicians examine him in Sandusky and they were not of the same opinion. He took the matter to the newspapers, but they did not care to take it up; there was no chance for a sensation in it. For once the newspapers were just to the insane asylum.

Dr. A. B. Richardson: The first case occurred years ago. The patient was anæmic and apparently depressed when he came into the institution; whatever excitement he showed was before admission. No one suspected in that case that there was a break until after autopsy. I did not think it could have occurred from any violence that he received. I suppose you all recall a paper read before the last meeting of the British Medico-Psychological Association in which there were very accurate statistics given by Dr. Campbell, I believe, regarding the strength of ribs. He made use of an instrument for measuring the strength of ribs and conclusively demonstrated that the average strength of ribs in the insane is very much less than in the sane, taking every case as it comes and without reference to the form of insanity or the cause of death. He had not gone far enough to deduce well authenticated conclusions. Of course you can see that the opportunities would be rather limited. It was only in those cases in which they had an opportunity for the very fullest autopsy and in which a considerable mutilation of the remains was permitted that the test could be made.

THE RELATIONS OF ALCOHOLIC INDULGENCE TO INSANITY.

By H. M. BANNISTER, M. D., Chicago, Ill., and G. ALDER BLUMER, M. D., Utica, N. Y.

The influence of the excessive use of alcohol in the production of insanity is one of the certainties, and yet there is occasionally a question raised as to the relative importance of this causal factor. A few years ago a physician, since a superintendent of one of our large State asylums, wrote a letter to show that its effects were insignificant, and in one way or another there has been produced a considerable literature on this side of the question. Nevertheless it may be fairly assumed that alcoholic intemperance is generally admitted to be a very important, if indeed not actually the most important, cause of mental disorder. Those who would dispute it are comparatively insignificant in number among alienists, and there is not any preponderance of scientific authority against it.

There are, however, certain questions that arise in this connection that are not so readily disposed of. While it is admitted that alcoholic excesses tend to mental break-down, while acute and chronic alcoholism are disorders that are universally recognized as appertaining more or less to the specialty of psychiatrical medicine, there is yet room for a wide difference of opinion as to the effect of the use of alcoholic drinks in what is called moderation. There is certainly enough excess to produce a very large percentage of insanity in our asylums, but data are too generally insufficient for us to be able to say with exactness the proportion of cases in which it has certainly been an etiological factor. These are by no means always what would be classed as cases of alcoholic insanity, as we are well aware, and often there may be nothing in the history as well as in the symptoms to point directly to any such origin. Intemperance is a disreputable fact and is likely to be concealed or denied, even when it may have been excessive. It is very possible that this tendency far overbalances the contrary one of making erroneous *post hoc, ergo propter hoc*, diagnoses of insanity from alcoholism on account of prior known habits when really other causes are to blame, in asylum statistics, and that our figures of mental diseases of alcoholic origin are much below, rather than above, the truth.

The questions, therefore, that arise as regards the influence of alcohol in the production of insanity may be stated as follows:

1. Does alcoholic excess produce insanity? This, as already stated, may be regarded as an indisputable fact.

2. In what proportion of cases is this factor to be admitted? This is one to which various answers have been made as indicated. The majority of reliable authorities place the percentage of cases directly due to this cause at not less than 10 or 12 per cent; some recent writers have estimated it much higher, and consider the increase of insanity in modern times as very largely due to such excesses. This is the view held by Smith of Marbach in a paper read last November before the Southwestern German Society of Alienists, and Garnier of Paris, in a communication a year or two ago, claimed that insanity had increased 30 per cent in the last fifteen years in that metropolis, largely from this cause, and that alcoholic insanity, properly so-called, had increased in that period threefold. Those who have minified the influence of intemperance to producing below 10 per cent, are very few and include no recent high authorities. We may therefore safely assume that at least 10 per cent, and probably more, of the cases of insanity in most civilized countries are directly due to alcoholic excesses. If we include only males, the percentage will naturally be higher, as alcoholic insanity is comparatively infrequent in women, and if we admit it as an indirect cause, we must add a considerable proportion of all cases of insanity in both sexes as more or less influenced by this factor. The poverty and misery induced by intemperance, the impaired constitutions, the reckless exposures, the traumatisms, etc., will all have to be considered. We might also add the defective organization inherited by the children of drunkards under this head to still further swell the percentage.

3. What constitutes excess in the use of alcohol, and what is the influence on the production of insanity, of what is considered its non-excessive usage? This is the most complicated question of all, and the one that is hardest to answer satisfactorily. The often quoted experimental investigations of Anstie, Parkes and Wollowicz, and of Dujardin Beaumetz, seem to show that, under normal conditions, between one and two ounces daily, or not much over the latter figure, of absolute alcohol is about what an average robust individual can stand, and that any amount above that is beyond the danger limit, or more than the system can dispose of

with safety. This, however, only applies to perfectly healthy and normal individuals, and does not cover all the possibilities of either tolerance or intolerance of alcohol. We know very well that for almost all time some individuals have been using intoxicants to a far greater extent than is above indicated, without any very apparent directly damaging effects upon themselves so far as known. On the other hand, perhaps a greater number will be seriously injured by even less than the minimum here given. Moreover, the not finding alcohol in the urine does not positively show that the system is innocuously disposing of all that is ingested; there may be more or less injury to the nervous system, even from a small amount. There is no class of agents that have their effects more modified by individual idiosyncrasy than stimulants, and of these alcohol probably takes the lead in this respect. The same dose will affect one man in his brain, another in his cord, and a third perhaps in neither. Steady drinking will cause often the most opposite effects, both physical and mental, according to the individual; with the same kind and quantity one man is jovial, florid, and red-nosed; another is pallid, taciturn, and surly; one man is incoördinate, with a comparatively clear head; another has his judgment and temper awry, without any apparent bodily symptoms whatever.

As regards small amounts of pure alcohol, the same holds true—there is no general universal standard of moderation. When we consider, however, that it is seldom taken pure, and that its physiological action is complicated by the other more or less active constituents in the usual beverages, to say nothing of the unknown adulterations, it will be seen that the question is a very complex one. According to Dujardin Beaumetz, bad brandy is more directly toxic than absolute alcohol, and that is the character undoubtedly of a large proportion of the drinks now commonly used by more or less habitual drinkers.

The chief action of alcohol, however, is that which it exerts upon the brain and nervous system, and it is for that that it is used as a beverage by mankind; whatever benefit it may be as a food, a retarder of tissue waste, or an assistant to digestion, is a very secondary matter, and is not usually regarded by the drinker except as a convenient excuse for the indulgence. It would not be unnatural to suppose that a normal brain has no need of alcohol, and that the effects of so active an agent on one inclined in any way to be abnormal might be deleterious, and that in the way it is

commonly taken, with all its associated more or less active substances, some of which are even more potent for evil than itself, this would be still more likely to be the case. There is, therefore, a reasonable doubt, at least, as to the safety to mental health of even small continued doses of alcoholic drinks, and the burden of proof lies on the side of those who would dispute this conclusion.

Practically there is no standard of moderation in the use of alcoholic drinks, and it is therefore impossible to use statistics to determine the effect of moderate drinking in the production of insanity. What would be moderation in one would be excess in many more, and the statements of habitual drinkers can not always be accepted as to their habits. The only way actual statistics could be obtained would be from the fullest and most carefully studied individual histories, covering not only the facts of the life of the patient himself, but also those of his ancestors for at least two or three generations. Charcot is credited with saying that, "every drop of the seminal fluid of a drunkard contains the germ of all the neuropathies." This being so we will have, in order to positively eliminate the agency, direct and remote, of alcohol, to search the pedigrees and family histories to find the neuropathic taint thus originating that may develop into insanity, possibly of the alcoholic type, possibly in any other form, in the descendant of the original transmitter. A habitual user of alcohol may, it may be possibly admitted, show no bad results in his own person and yet pass on a deteriorated nervous constitution to his offspring. The effects on the individual himself may be slow in developing, and may require a skilled medical diagnosis for their recognition as of alcoholic origin, however serious they may be. It would be of interest to know what proportion of cases of senile insanity and late organic dementia occur in abstainers and in those who have been accustomed to the occasional or habitual moderate use of alcoholic drinks, and in this line is perhaps the best hope of finding any value in statistics for answering this particular question. If moderate drinking has any effect in causing insanity, it might be naturally supposed that it would be late rather than early in its appearance.

It has been already mentioned that we have to consider not merely the alcohol but the other constituents of the ordinary beverages when taking account of the pathological effects of these latter. Pure alcohol is very little used as a beverage, and when so

used, as by the Scandinavians in some parts of our country, it is nearly always to excess, and the effects are obvious and indisputable. In the ordinary spirituous liquors we have not only ethylic, but also the higher, more toxic alcohols in greater or less proportion, together with various ethers and other substances, many of which are powerful neurotics, to say nothing of unknown adulterations that may be more or less harmful. These last, together with the ethers, etc., occur also in the various wines, especially the imported ones. In beer we have of late years a number of new constituents, as there have been extensive changes in its manufacture. Malt liquor would seem to be a misnomer for some of the beer of to-day, as glucose is said to have largely superseded malt in some beers, and where the cereals are employed they are likely to be rice or corn (meal), etc., instead of the traditional barley. Whether these changes render the drink any worse as regards its action on the nervous system may perhaps be a question, but is one the consideration of which complicates the subject. The amount of the nervous depressant lupulin with the alcohol taken into the system is also worth bearing in mind in the consideration of the possible effects of beer, in favoring insanity. *A priori*, it would seem that it might have such action, but as yet actual satisfactory data are hard to obtain. That the moderate use of alcohol, generally in the form of beer, has a bad effect in actual existing mental disease is supported by the testimony of English (thirty out of fifty superintendents reporting), German (Kræpelin), and Swiss (Forel) alienists who have had experience with and without its usage.

The answer to the third question, therefore, is a complicated one. There is no exact standard of moderation in drink: the minimum quantity is injurious to some, while others are apparently unaffected injuriously by very large amounts. If we could put all moderate drinkers on a certain ration, really moderate and within the limit given by Parkes and others, of alcoholic drinks and keep them to it, and we could after a time ascertain their physical personal equations as to endurance of alcohol, some generalizations could be made from statistics. Where this has been done, as, for example, in the population of some asylums in Europe, the weight of evidence is rather against the absolute innocuousness of alcohol so used. The conditions there, however, are not those of the average population, and can not be accepted as applying directly to the question of the production of insanity by alcohol.

There may also be some little value to statistics of organic and senile insanities as occurring in known moderate drinkers and in abstainers.

The answer to the question is complicated by the uncertainties as to the exact toxic value of the drinks used, the other neurotic constituents besides the alcohol they contain; by the effects of climate, age, individual idiosyncrasies, etc.; by the possibilities of the late developments from long continued dosing and those of hereditary transmission, and especially by the varying and often very liberal notions of drinkers as to what moderation is, and the tendency of even moderate drinking to lead to excess in individuals possessing any neurotic or hereditary taint.

A priori, it would seem probable that even the moderate use of powerful neurotic agencies would at least have no beneficial effect on a normally constituted brain, and that in one at all abnormal, when used simply as an indulgence and not under any scientific medical supervision, there might be serious chances of positive injury.

Our knowledge of the effects of alcohol in the production of insanity may, therefore, be summed up as follows:

1. Alcoholic excesses produce insanity.

2. They are directly the cause of at least 10 or 12 per cent, and probably of a somewhat larger percentage. Indirectly they are among the causal factors of a very large proportion of cases that can not be directly credited to alcohol.

3. Moderate drinking is a very indefinite term, and this fact alone makes it impossible to utilize satisfactorily any statistics as to its effect in producing mental disease. There is, however, no reason to believe that moderate indulgence in alcohol is specially conducive to mental health in the average individual, and there is, on the other hand, a certain amount of physiological *a priori* presumption to the contrary. For the victim of hereditary taint or the neurotic it is undoubtedly often disastrous in its effects in this direction.

STUDIES ON THE LESIONS PRODUCED BY THE ACTION OF CERTAIN POISONS ON THE CORTICAL NERVE CELL.

Part I.—Section I.

EXPERIMENTAL LESIONS PRODUCED BY THE ACTION OF ABSOLUTE ETHYL ALCOHOL ON THE NERVE CELLS OF THE RABBIT'S BRAIN.

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The most extensive treatise on the pathology of chronic alcoholism to be found in the English language is Bevan Lewis' article in his Text Book on Mental Diseases. Indeed, so widely has it been accepted as the minute anatomy of this morbid state, that in Tuke's Dictionary of Psychological Medicine, it is quoted to the exclusion of all other writers.

Abstracted it reads as follows: "The changes in the vessels are nuclear proliferation, atheroma, and aneurismal dilatation, the last eventually giving rise to a cribiform condition. The motor cells are swollen and rounded, stain deeply, become granularly pigmented, and the apical processes degenerate. The cellular wall is thickened. There is a considerable quantity of pigment deposited between the shrinking protoplasm and this cell wall. The processes of the cells are stunted and are covered with nuclei, and the protoplasm is granular or vacuolated. In the lowest layer, the scavenger cells and nuclei cover the spindle nerve cells, which are very much degenerated and altered, and are practically being devoured by these proliferating cells."

"The medullary sheath of the nerve processes gradually disappears, or is so altered by the invading connective tissue that the axis-cylinder—which is frequently fusiform, as in other cases of inflammation of the nerve fibre, can be perfectly well stained with the aniline color, when it becomes a prominent feature in the cortex."

Lewis describes the motor cells of the so-called third layer as

being the first implicated in the cortex, and says that those of the deeper and more superficial layers follow in order.

It would seem from this description as if there were no specific lesions of the central nervous system from the continued abuse of alcohol, to be discovered, certainly the vascular changes found are frequent in brains that have exhibited no clinical picture of the effects of alcohol during life, and taking atheroma and miliary aneurisms from among the list, it would appear as if there were other conditions of which we at present know nothing; as all pathologists are familiar with brains that show in marked degree these changes, but whose owners have in no wise been addicted to the abuse of the drug. Nevertheless there can be no doubt that alcohol in the common forms of wines and distilled liquors, does exercise a direct influence on the cerebral vessels, irritating their coats, especially the intima, perhaps paralyzing the vaso-motor nerves accompanying them, in more or less enduring fashion, hence giving rise, from the irritation, to nuclear proliferation, and from the distension of the vessels, to transudations, local minute extravasations, clumps of hematoidin granules and detritus in the perivascular sheaths, then blocking of the lymph currents, and general disturbance of the lymph flow in the peri-vascular and peri-cellular channels.

Of the changes in the nerve cell produced by the direct contact of the diluted drug flowing with the nutrient serum from the blood-channels into the peri-cellular spaces, we at present know nothing, but from a clinical standpoint the immediate effect in occasioning disturbed metabolism must be very great.

With Lewis' ideas of the coarser changes produced by the continued abuse of the drug upon the nerve cell, we are in unison, as only too frequently in alcoholic brains have we met with the shrunken protoplasm, stunted processes, and granular cell bodies, but these alterations only mark the after-effects of long continued malnutrition and irritation of the cells by the poison. In other words, we see only the after-effects of a degeneration which has proceeded a considerable distance toward utter deterioration of the cell body before it is visible to carmine, hematoxylin, aniline blue-black, and the freezing methods. What we really wish to ascertain is not only the condition of the protoplasmic body, but also the early changes in the finest twigs of the dendrites, and the finest variations of the nucleus and nucleolus from the normal.

A newer though very small literature has sprung up since 1890, when the work of Lewis first appeared, and the methods of histological research have been extended to a realm whose boundaries were only beginning to be entered upon at that date. I refer to the beginning of the extended use of the chromate of silver methods, and the magenta and methyline blue stains of Nissl, the one almost fully supplementing the other, in so far that by one we may obtain perfect impregnations of the neuron to the uttermost limits of the dendrites, and by the other an accurate view of the condition of the cellular protoplasm, and in particular the nucleus with its chromophile particles.

The newer literature as already mentioned is very scant; portions of these articles only treat of the lesions of the nerve cell when subjected to the presence of alcohol in the living organism.

Colella (*Arch. Ital. de Biologie*, 1894, p. 216), by the application of the Golgi silver method to the cortex of an alcoholic brain, found lesions of the neuraxon of the nerve cell, slight involvement of the cellular body, and dendrites in the alteration. He speaks of the blood-vessels and neuroglia as not being implicated in the changes.

Vas (*Arch. f. Exper. Path. u. Pharmakologie*, Bd. XXXIII, p. 141), in an experimental work on the poisonous effects of alcohol and nicotin on the nerve cells, finds well marked changes in these bodies, especially in the great cells of the anterior horns of the spinal cord, and in the spinal and sympathetic ganglia. As a first change, the cells lose their chromatin structure, the finely granular appearance is perceptibly diminished, and gives place to a homogeneous swelling. In advanced cases of the alteration the cellular protoplasm alters its power of taking up the coloring matter, and appears darker than normal. A shrinkage of the protoplasmic body cannot be definitely ascertained.

The study of Andriezen (*Brain*, 1894), is of much greater interest than the foregoing works, and is worthy of careful consideration. Using a modification of the Golgi method, he finds extensive changes in the neurodendrites and neuraxons of the nerve cells of the cortex; the alteration, beginning in the fine bead-like "contact-granules" upon the substance of the protoplasmic extensions, proceed to moniliform swellings along the course of the protoplasmic twigs. With the further progress of the lesion these softened and enlarged protoplasmic masses form irregular botryoidal masses,

mainly clothing the now irregularly bared protoplasmic stem, which rapidly becomes attenuated.

"The changes in the cell body are of similar nature, and consist in a gradual disintegration after the apical and others of the processes have suffered. Here and there at the side of the cell body the protoplasm seems to become frayed, or as it were eroded. In other cases the cell protoplasm becomes vacuolated from within, and the process continues until the whole interior protoplasmic structure is channeled by holes and seams of liquefaction."

The nerve fibres of the cortex Andriezen finds granular and wrinkled in outline, and what is much less certain, a process of unequal staining, portions of the filament being completely stained, while others are pale or colorless, and only visible by the highest powers of the microscope.

It will be noticed that in none of these articles is there any mention of the state of the nucleolus and nucleus. This partly arises from the methods of staining used in the various investigations. Lewis' aniline blue-black does not allow the interior structure of the cell to be accurately seen, nor does the silver method permit any inquiry in this direction, and Vas, who used nuclear stains, does not seem to have considered the nucleus of the nerve cell, probably from the difficulties that attend its accurate investigation. The material at our command has however allowed of more accurate procedure, and in this direction our labors have been partly directed, somewhat to the exclusion of the intimate structure of the nerve cells' protoplasm.

Owing to the kindness of Prof. Welch and Dr. Friedenwald in furnishing us with the brains of a number of rabbits that had been subjected to the continued—intra vitam—action of absolute ethyl alcohol over a considerable space of time, our material allowed us a better opportunity for the investigation of the nerve cells than could be obtained from human alcoholic brains, in so far that we had an accurate knowledge of the amount of alcohol the animal had been subjected to per kilo of bodily weight, the duration of the poisoning, and last though not least we were enabled to obtain the cerebra in much fresher condition than could be obtained from the autopsy table. Appended is a condensed table of the histories of the five rabbits used in the investigation.

CONDENSED RABBIT HISTORIES.

Number of rabbit.	Apparent age.	Condensed weight in grammes.	Quantity of alcohol fed per diem.	Began to feed.	Died.	Weight at time of death.	Clinical cause of death.	Gross anatomical lesions found.
6	Adult.	1450	5 to 8 c. c.	Dec. 19, '93.	Dec. 20, '94.	1420	Convulsions.	Fatty heart.
10	"	1920	" "	Dec. 30, '93.	Oct. 21, '94.	2500	Ascites.	Cirrhosis of liver.
39	"	1540	" "	July 5, '94.	Dec. 5, '94.	1400	Convulsions.	Fatty heart.
41	"	1890	" "	July 5, '94.	Feb. 4, '95.	1420	Convulsions.	Fatty heart.
42	"	1940	" "	July 5, '94.	Feb. 10, '95.	1610	Convulsions.	Fatty heart.

METHODS OF EXAMINATION.

All the specimens of brain tissue that came into my hands for the purposes of this study—pathological as well as normal—were hardened either in alcohol or in Müller's fluid. For the Nissl method and modifications thereof used for the demonstration of the cellular structures, and for hematoxylin-eosin staining for the blood-vessels, the former method of hardening was applicable, but for studying the finer dendrites of the nerve cells it became necessary to devise some ready method of staining by which impregnations with metallic salts could be obtained for tinging the finer extensions of the nerve cells. A research among the literature devoted to microscopic technique failed to afford any suitable process, and, after consideration, the following process was adopted and found to be more satisfactory than any other, and indeed it gave finer and more complete pictures of the cortical neurons than the ordinary Golgi method. We have at this time stained quite a large number of pieces of brain substance with it—both human and rabbit—and have yet to have a single failure in the process, though of course all the impregnations were not equally good. The whole disadvantage the method has against the Golgi-Cajal procedure is that the thicker dendrons are rendered so brittle by the silver that they are readily broken into fragments by the sharp edge of the knife passing through the tissue, but as the fragments are not usually carried far from their natural seat, errors from this source are to be avoided with ease. On the other hand the great advantage that accrues to the pathologist from being able to make use of any desired portion of an entire brain already hardened after the usual method in Müller's fluid, is at once apparent, par-

ticularly when the silver impregnations obtained are much finer than those had after a very troublesome and particular hardening process, and though it is but a small consideration, it is more economical of osmic acid than the Cajal method as the osmic acid mixture may be used more than once.

The staining obtained is much more intense than is found after the ordinary chrome silver staining, the cell bodies and processes are intensely black, and it is seldom at the points of the finest dendrites that the familiar reddish-black color makes its appearance. It is evident from the appearance of the nerve cells and axôns that the chemical combination between the nerve tissues and the silver salts is quite different from the simple chrome-silver combination of the Cajal process. Our method is a much closer approach to a true stain than an impregnation, and no traces of an incrustation are ever to be found. Under intense illumination the cell body is found to be homogeneously blackened, and fine lines are seen running through the protoplasm from one pole of the cell to the other. The addition of sodium sulphate and phospho-molybdic acid, to the hardening and staining fluids respectively, makes the chemical reaction between the constituent elements much more complicated than when there are only the simple kalium bichromate, osmic acid, and silver nitrate to deal with, and an attempt to formulate the resulting reactions would be most difficult.

The process is as follows:—The cerebra are treated with Müller's fluid until the tissue is of sufficient consistency to admit of fairly thin sections. The portions of the brain selected are then cut into pieces not more than three millimetres in thickness, and the slices are immersed in a mixture of a three per cent solution of bichromate of potassium and solution of 1% osmic acid, in the proportion of 100 parts of the former to 16 parts of the latter. In this mixture the slices lie from five to seven days, are then removed from the fluid, and slightly dried on filter paper to remove any superfluous bichromate, are then washed for a few minutes in a weak solution of silver nitrate, and then go into the second or staining mixture, which is made by adding two drops of a 10% solution of phospho-molybdic acid to each 60cc. of 1% arg. nitrate solution in distilled water.

The second solution is to be made only as needed, and at the moment before placing the brain tissue in it. In the mixture of finely precipitated phospho-molybdate of silver held in suspension

in the free silver nitrate solution, the tissues are immersed, and allowed to remain without being disturbed for two or three days, or, if it is inconvenient to cut them at this time, a few drops of fresh silver solution may be added to the old fluid, and in this the tissues may remain indefinitely. The object in adding the additional silver nitrate is to be prevent any chance of all the salt being precipitated or absorbed, as plain water will soon cause a deterioration of the distinctness of the impregnation of the nerve cells. Light does not seemingly affect the tissues unfavorably.

The individual details of the component parts of the neuron are somewhat finer than by the Golgi-Cajal method; each element stands out clearly and distinctly, the axôns with their collaterals are clear; and the gemmulæ or buds on the protoplasmic processes are fully and equally impregnated, and appear in their proper relations to the parent dendrite. There is always some coarse precipitate along the margins of the section, but rarely the finer one that is so annoying in the older chrome-silver specimens.

The Lesions Found in Preparations Hardened in Absolute Alcohol.

The first part of the study was conducted on the brains of two rabbits hardened in absolute alcohol, and stained according to the methods of Nissl, and with hematoxylin-eosin.

In order to fully appreciate the structure of the pathological nerve cell stained by the Nissl procedure, we must first glance at the normal cell as seen in the control preparations. The aniline dye does not stain all portions of the cellular protoplasm equally, but leaves clear spaces between others more deeply stained—the chromophilic particles. In the cell body the arrangement of these chromophilic particles is always definite, though varying considerably according to the character of the cell itself. Thus in the anterior horns of the spinal cord we find a net-like arrangement of the stained particles (arkyochromic cells), while those of the cerebral cortex have them mainly arranged in rows (stichochromic cells). Furthermore these various cells are divided into several main groups by the different relations of the nucleus to the cellular protoplasm. Only two of these groups are ordinarily to be seen in the cortex, mainly cytochromic cells, or nerve bodies having a nucleus approximately the size of a leucocyte, and with a very small amount of stained protoplasm surrounding it; and (2) somato-

chromic cells having a nucleus of moderate size surrounded by a considerable body of protoplasmic substance with a definite contour.

With the cytochromic cells we have but little interest, the main body of the cortical cells being somatochromic, and of the stichochromic variety.

Furthermore, the nuclei present variations in their size, contents, refraction, and receptivity to the absorption of the aniline dyes. The arrangement of the contents of the nucleus also varies considerably. In some we find only a single well defined nucleolus, the edges smooth and rounded, surrounded by very fine dust-like grains, all deeply stained by the dye, the whole imbedded in a transparent karyoplasma that does not take up any of the aniline. Others have two or three nucleolar particles, seldom more than this number, all smooth, and situated in the several quarters of the nuclear circle, imbedded amidst dust-like grains of a finer or coarser character.

Besides these chief varieties a third exists in which the nucleolus is less distinct than in the others, and the nuclear dust is somewhat coarser than in the other varieties. All these forms present little difference in their staining qualities, the amount of dye taken up outside the nucleoli and dust is very small, and the nucleus in consequence is invariably refractile and light colored. The fourth variety of nucleus is differentiated by the variation in the receptivity of the staining fluid. It absorbs a little more of the dye, sufficient to color it slightly, but the numbers of these cells in the healthy brain is minimal, and for the practical examination they may be excluded.

Histology of the Absolute Alcohol Sections from the Alcoholic Rabbits.

The two rabbits of this series have to be considered separately on account of slight anatomical differences.

Rabbit 10. Vessels:—The capillaries and intermediary vessels in the control specimens have a smooth regular contour, the nuclei in the walls are sharply stained, and take up an equal quantity of the coloring matter, and the cell structure between the nuclear points is free from a suspicion of color (eosin specimens do however have a slight staining of the capillary wall with the dye). The perivascular spaces are narrow but distinct. In rabbit No. 10 the smallest arteries have an entirely different appearance from the control sections. The walls of many of them are irregularly

shrunken, at intervals almost botryoidal in appearance, and the nuclei of the vascular walls, while not increased in numbers, are swollen, absorb more of the aniline stain, and project considerably into the lumen of the canal. The perivascular space is larger than in the control preparations, and the hyaline membrane separating it from the cerebral substance is a little more definite than normal. There is no detritus in the space. As we progress upward in the scale of size, the changes of an abnormal character do not increase greatly, except that the vascular walls are slightly thickened, while the irregularities in their boundaries are gradually lost; but on the other hand the nuclei, especially those of the outer layer of the vessel are somewhat multiplied, at times, though rarely sufficiently so to cover the exterior of the vessel with rather dense aggregations of round nuclei, through which the proper structure of the canal is seen with difficulty. The perivascular spaces around these vessels are larger than usual, and the cerebral edge of the space stains more deeply than normal. Occasionally there are a few grains of hematoidin debris within the space; more commonly it is vacant. On transverse section the walls of these vessels appear to be a little thickened, the change affecting the intima more than the media or externa. Very few of the arteries show any very distinct changes. The larger veins do not show any alteration from the normal. Four or five miliary hemorrhages into the sheaths of the vessels were noted in the several sections, all near the pial margin. Altogether few definite lesions could be determined in the blood-vessels, the perivascular dilatations and the hemorrhages alone excepted.

In rabbit No. 10 the vast majority of the nuclei of the somatochrome cells of the cortex show similar alterations and departures from the standard established by our control preparations. The most prominent of these changes lies in the central nucleolar figure, for in the place of the smoothly appearing dot, in or near the centre of the ring, it now appears roughened, spongy, or even with elongated projections from its surface. Not only is the nucleolus roughened, but it is also considerably enlarged, occupying now from an eighth to a sixth of the interior of the nucleus, its projections extending to the periphery of the nucleus. Around these nucleolar figures are grouped a small number of nuclear dust particles resembling an irregular circle, but the remaining portions of the nucleus are comparatively free from the presence of molecular particles, in contrast to the control preparations. In the clear

karyoplasma there is a decided tendency to take up more than normal of the aniline stain; so marked does this tendency become at times that the contents of the nucleus are rendered indistinct, and the body becomes much less refractile than natural.

The above description applies exclusively to the mononucleolar variety of nuclei. The varieties showing two or more nucleoli have nearly disappeared, and it is highly probable that the largest masses of spongy nucleoli of the altered nuclei are formed by an agglutination of these chromophilic masses, for indeed in not a few of the cells enlarged and swollen nucleolar particles are seen approaching each other in some portion of the nucleus.

Hardly any nuclei are found differing widely from these two pathological varieties, though not an inconsiderable number of the normally disposed nuclei are seen here and there in the field, the proportion however being inconsiderable.

To recapitulate, we find alterations of the nuclei chiefly in the disposition, size, and irregularity of contour of the nucleolar chromophilic particles.

Rabbit No. 38. The blood-vessels show the same condition as in rabbit 10, only not so accentuated. The botryoidal appearance is not so marked. The nuclei of the intermediary vessels are only multiplied to a small extent, an alteration that extends to the smaller veins. In one small artery I detected a distinct aneurismal dilatation.

All the nerve cells take up a larger quantity of aniline dye than normal, the chromophile masses of the protoplasm are not distinct, the nuclei are nearly all mononucleolar, and the nuclear substance stains a deeper hue than in the control. The nucleoli are comparatively seldom swollen or enlarged, here and there one is seen, perhaps an average of one in fifteen cells, but in many others there is a tendency to be out of proportion in size to the surrounding ones. The nuclear molecules are fine, while the substance itself takes up an unusual quantity of the stain.

A few sections of the cortex of this rabbit were stained by the Weigert method, but I could detect no variation from the normal among the fibres of the coarser bundles of nerve filaments. The finer inter-cellular fibres were not very numerously stained.

The Normal Structure of the Rabbit's Cortex as seen with the Silver Method.

The arrangement of the nerve cells in the cortex of the rabbit's brain differs little from that of other mammalia. The structure consists of three indistinct layers of cells, with beneath them the medullated masses of white matter. Viewed with a low power there is but one distinct cellular layer.

In the outer or molecular lamina are situated a minimal number of small irregular nerve cells whose axis-cylinder processes seem to course parallel with the surface of the brain. Beneath this region lie bicornuate small pyramidal, elliptical, and irregular cells, their axôns nearly always turning downward. Beneath these cells lie others of approximately pyramidal form, but of a larger size than those immediately super-jacent to them, and mingled among them are a few irregular cells. All the neuraxôns from this region turn downward into the radial bands of fibres. The apical dendrites of nearly all the large pyramidal cells reach nearly to the pial limit, and by division form an intricate meshwork of protoplasmic extensions beneath it. The dendrites of the irregular cells spread out to a greater extent laterally than vertically, but without definite course.

Beneath the pyramidal cells having long apical processes, and bordering on the white medullated fibre layer, lie cells of quite a number of forms, mainly irregularly pyramidal and angular. The stronger processes of these cells are up-turned, while the axôns are down-turned. Lying between these cells and far more numerous, are small irregular cells, with protoplasmic extensions outstretched in all directions. Their neuraxôns are all turned toward the surface of the brain, and on their way thither they give off numerous collaterals, and finally reach the tangential band along the pial surface, among whose fibres they are eventually lost.

All the pyramidal cells of the cortex of whatever kind, and very many of the irregular and angular ones have coming off from their protoplasmic extensions short rectangular or oblique projections or gemmulæ, that have been so universally found by the silver method in the brains of all animals, as not to admit of the possibility of a doubt that they are present during life and are not artifacts as was once supposed (Kölliker), indeed they have been demonstrated in particularly fine Nissl preparations (Lenhossék), and are undoubtedly a factor of considerable importance in the economy of the

nerve cell, though their function at the present time is somewhat doubtful. On the apical process of the pyramidal cells the gemmulæ are usually simply roughenings on the process, higher up they lengthen out, and have a bead-like ending. On the thinner branches of the cells, especially those that come off from the basal extremity, they are longer, thinner, and are arranged with considerable regularity, and give to these dendrites something of a feathered appearance.

Besides the gemmulæ the nerve cells have upon their branches a small though very variable number of varicosities. On the thicker portions of the apical processes these varicosities are never present, but in the thinner dendrites they are here and there to be met with, particularly at the branchings of the stems. These varicosities must be held to be normal as they are to be demonstrated in methylene blue as well as in silver preparations.

With the Purkinje cells of the cerebellum, the gemmulæ contribute greatly to the actual outspread of the dendrons. They are arranged with great regularity, and endow the extensions with more of the feathered appearance than those of the cerebrum. Knots upon the stems of the extensions of the Purkinje cells are frequent, are of small size, and give the branches an uneven appearance.

Along the outer edge of the cortex numerous forms of support neuroglia cells, such as have been described by Retzius and others, are seen, but lower, among the nerve cells, the glia elements are but sparingly stained. Few of them belong to the long-rayed Golgi type, but are replaced by a cell with quite large body, and short but thick and knotty arms. These cells are always to be seen in the immediate vicinity of an intermediary blood-vessel, which they frequently surround, and send off to its hyaline sheath one or more thick processes that terminate in knob-like endings. In disease, unlike some other varieties of neuroglia cell, they atrophy and disappear.

The Pathological Histology of the Rabbit's Cortex in Chronic Alcoholism.

The material for this portion of the study comprised the brains of three rabbits preserved in Müller's fluid. The lesions found in all the specimens were identical.

In formulating any description of the pathological changes

found in chronic alcoholism, we should always have prominently before our mental vision the fact that the normal characteristics of the cortical cells, as we see them by any of the more usual methods of preparation, vary, within certain fixed limits, and that these must be overstepped before we can say with certainty that we have before us an abnormal condition. By any method of staining with the chrome silver salts this is perhaps more strikingly the case than by other methods, and the observer must be constantly upon his guard against deceptions into which he may very innocently fall.

A portion of the uncertainty of the silver method we have been able to obviate from the fact that the new mode of staining we have pursued is more fixed and reliable than any other treatment we have hitherto tried. Truly, a comparison of many scores of normal cells in the control slides show little or no variations in the cell itself beyond those inherent to the several varieties.

The intrinsic variations in the formation of the neuron itself are for the practical purposes of this examination reduced to the normal inequalities of the varicosities in the construction of the dendrons. These inequalities in the cortical dendrons are of comparatively infrequent occurrence, in contrast to those of certain of the cells of the basal ganglia, and belong either to the finer dendrites of the irregular cells, or to the points of division of the dendrites, and are then usually of triangular form and small size, and may readily be excluded in an examination for pathological lesions.

Besides the swellings in the course of the dendrons, we have always to be on the lookout to exclude certain processes of the neuroglia cells that traverse long distances in the cortex, and exhibit a pearl-string swelling in the course of the fibre. These nodal formations lie at perfectly regular distances from one another, and present the appearance of a double cone of small size. It is only when these fibres are detached from the cell body that they can give occasion to error. Another source of trouble to the observer is the occasional deposit of rounded masses of precipitated silver upon the dendrons, or upon the cell body, but this may usually be cleared away without difficulty by a careful examination of the edges of the questionable mass with strong transmitted light, when the irregular structure of the precipitate and serrated edges will at once appear. Still another source of error is the fracturing of the protoplasmic processes by the edge of the knife, the silver salt ren-

dering the protoplasm brittle, but once aware of the difficulty it is easy to eliminate it as a source of error.

After all possible allowances have been made for artifacts and physiological variations, together with inequalites in the staining process, there remain a large number of cells in the alcoholic brains that are distinctly abnormal.

The principal lesions to which we would call attention, are a distinct diminution in size, a shrinkage of a vast majority of all the cortical cells, disappearance of the gemmulæ, certain swellings in the dendritic processes, and roughening of the stronger processes, and to some extent of the cell body.

We have not succeeded in staining the Cajal cells satisfactorily in the alcoholic rabbit's brain, but with this exception the cortical cells of all the layers may in chronic alcoholism be considered to be involved in a process of retrogressive metamorphosis, some in greater, some in less degree, but all are implicated to some extent. The small cells of the outer layer show degeneration, the pyramidal cells show the same changes in greater intensity, the lowermost pyramidal and irregular cells are equally involved. Fortunately, the pyramidal cells from their very fixed character and larger size are more easily studied than the others, and our principal attention has been directed toward them.

It is extremely difficult to determine in the silver preparations the approximate proportion of cells that are normal, and cells that may definitely be held to be abnormal, from the fact that an extremely small proportion of the total number of cells in all the layers are at any time stained. In some of the preparations from the same brain but one in a dozen cells show any definite change, while in other sections nearly all the cells are altered. It would perhaps be fairly safe to conclude that one out of every three or four cells in the brains of the three alcoholic rabbits we examined show departures from the normal in some form, though the percentage is probably higher. Another source of error in estimating the numbers of diseased cells arises from the circumstance that we can form no idea whether the silver salt preferably impregnates the normal or abnormal cells, for even in histological preparations no one has advanced any plausible theory why the silver elects here and there a cell to impregnate, and leaves the others perfectly untouched by the salt. Golgi (Berl. Klin. Woch., No. 14, 1894) opened the question as to the capability of the diseased cell to re-

ceive the silver stain, but could only answer it to the extent that even much degenerated cells were impregnated.

A careful comparison of a control preparation, and one from an alcoholic rabbit will show the following differences, the cell bodies and main processes in the normal are more even and smoother, the dendrites are broader, the gemmulæ are longer and more numerous, thicker, more feathery, apparently spreading over more lateral surface, and are very regular in appearance; while in the alcoholic there is a gap here and there as if some of them had fallen off or had disappeared. Indeed the differences between the two cells may shortly be expressed in that the whole appearance of the normal cell is stouter than its pathological fellow.

Among the cellular layers, and we take the pyramidal cells of all sizes as our chief exponent, we find a vast number of the cells which show upon their protoplasmic extensions one or more swellings of a rounded or elliptical shape. Some of these tumefactions are very small and only to be noticed after close search, while others are so large as to immediately attract attention and excite suspicion that they are artifacts, and indeed it was only after a thorough examination by means of the electric light that we were enabled to disabuse ourselves of the idea that they were not artificial productions. Under the intense illumination of the electric lamp they appeared as uniform reddish bodies divided longitudinally (under high magnification) by a series of fine lines converging upon the substance of the unthickened portion of the dendrite. The number of the swellings upon an implicated dendrite may vary very considerably; a dendron may be almost wholly filled with the swellings; at other times there may be only one or two, of either large or small size.

The process of tumefaction always appear to begin at or near the fine free extremity of the dendron, be it the extremity of the main apical process or one of its collateral branches, and not infrequently the cornical termination of the dendron is seen to be somewhat swollen before any other portion of the cell is involved. Looking over the preparations a little closer, we find numerous cells with the moniliform swellings stretched along the finer apical processes, until a number are seen with the whole of the apical processes thickly studded with the bead-like swelling. Somewhat remarkable to relate the basal dendrons are only exceptionally involved in the tumefactive process, though they

do not escape alteration when the cell corpus eventually begins to shrink.

An essential accompaniment of the tumefaction of the protoplasm of the dendron is the loss of the gemmulæ. The smallest swelling causes along its edges an evident decrease in the number of the buds; after the swelling has increased to a considerable degree all disappear, while in the intermediate stages every step toward decrease and disappearance may be found. Between the points of swelling they are retained, but are often seen to be thinner and situated at more irregular intervals than normally. When long thickenings occur in the dendritic stems the buds are invariably lost. The last of all the gemmulæ to disappear are the thicker branched ones that project at intervals some little distance beyond the others, and at times, though very rarely, they may still be seen clinging to the sides of some not far advanced swelling.

A very accurate comparison, so far as outward appearances go, may be made between the moniliform swellings of the dendritic processes of the nerve cells, and the swellings on the branches of some species of the oak tree caused by a parasitic disease. Both have the same knots and swellings on their branches, even to the falling off of the finer lateral twigs of the tree when the disease has advanced to a considerable extent, and both may go on to produce a shrinkage of the substance, finally ending equally in decay and death to the plant and cell.

As the arterial changes found were comparatively unimportant in their character, it would be difficult to ascribe this widely extended and curious process of tumefaction of the dendrites and disappearance of the gemmulæ to nutritive changes solely from a defective supply of nourishment to the nerve cell, though truly the definite enlargment of the perivascular spaces would indicate that there had been some previous disturbance in the circulation of the lymph currents of the cortex. It would seem much more plausible to attribute the lesions to the direct action of the poison upon the protoplasm, though why it should take this peculiar form is difficult to determine. The alterations can hardly be of a fatty nature, as the bodies of the unstained cells show nothing of this nature beyond the ordinary amount of yellow pigment granules, which in the rabbit is minimal.

It would appear from our specimens that the moniliform swellings of the dendrites and the loss of the lateral buds are the first

steps in a pathological process which eventually is to end in the partial or complete disintegration of the cell structures, and with it the annihilation of the nervous forces produced by the cell, the latter probably preceding anything like cellular death, for clinically we frequently see almost complete dementia alcoholica when according to the ordinary methods of staining but comparatively few of the nerve cells show characteristic signs of degeneration.

Only a few of the nerve structures of the rabbit's brain give any evidences of deterioration of the substance of the corpus beyond those already described, though occasionally a neuron may be found which exhibits a more advanced degree of degeneration. Then the basal processes immediately adjacent to the body are roughened and seamed like the coarse bark of a tree, the staining of the altered protoplasmic substance is irregular, the cell body is irregularly shrunken, the basal dendrites no longer stretch over wide areas like their normal fellows, but have dwindled, the gemmulæ are lost, and they are not stained for any distance from the corpus of the cell, but soon end in needle-like points. Some of these cells might even be described as being corrugated from the very roughened appearance of their exterior.

The nucluei of the nerve cells are seldom to be seen in silver preparations, occasionally a vacuole occupying the spot where the nucleus usually lies can be determined, and in its centre, a black dot, probably the nucleolus, may be found if a careful search be made for it, but no details of the intimate structure can be determined. A very few cells in the sections exhibit a process we have thought possibly may arise from a defect in the impregnation, though on any ground it is difficult to account for. The dendrons and axôns of the neuron are perfect, while the cell body looks as if a portion of its substance had been scooped out, down to the region of the nucleus.

The axis cylinders of all the cells of the cortex were made the object of careful study, but no morbid alteration could be made out in them, but this continuance of the axôn when the other portions of the cell structures are far degenerated is one of the peculiar features of the neuron which has before attracted attention, especially by Golgi (l. c.), who found that the axôn resists to a greater extent degenerative processes than the dendrons, and may be found intact when the cell is reduced to a mere stump. In all our preparations very numerous axis-cylinders were stained, and

could be traced from their commencement at or near the basal end of the cell, downwards into the white layers, or upward toward the uppermost layer of tangential fibres but no trace of unusual varicosity or break in their continuity could be discovered. The collaterals oftimes could be followed considerable distances, occasionally to their free endings, but nothing abnormal could be seen. Cells in an advanced stage of degeneration had as perfect axis-cylinders as normal ones, and could be traced equally long distances.

The Cortex of the Cerebellum.

The Golgi cells and Korbzellen of Kölliker stained only in inconsiderable numbers, and but few of those impregnated showed changes comparable to those of the cerebral cells. The Purkinje bodies on the other hand were luxuriantly tinged, sometimes an entire row being blackened and exquisitely brought out. A better comparison could therefore be made in these preparations between the numbers of degenerated and undegenerated cells, the proportion now being, when an entire row was taken, one degenerated to three normal ones.

Practically the same alterations were found with the Purkinje as with the pyramidal cells, though the changes were more striking from their relative intensity. The loss of the lateral buds, from their greater luxuriance, was extremely striking, they disappear from the dendritic branches as an entirety, and on a considerably degenerated nerve body not a single one can be found.

The stems of the dendrites also undergo atrophy and in great measure disappear, only thick stems are now seen arising from the corpus of the cell, which give off a number of short, stumpy branches thickly studded with knotty projections in the place of the long feathery dendrites and their terminal branches. These twisted and shortened stems have numerous swellings in the longitudinal direction of their protoplasm. Those that still retain something of the form of a dendrite have numerous irregular swellings in the stems of the finer branches, the gemmules are almost universally lost, and the whole appearance is as if the dendrites had become knarled and knotted by the action of some parasitic insect. The cells that are least implicated have the rounded and longitudinal swellings along their finer stems, and the buds along the margin of the stem are fewer than elsewhere.

The degeneration of the Purkinje cells while having the same general characteristics as the cell degeneration in the cerebrum is much more striking, and there is no possibility of mistaking the process for anything else than it actually is—a degeneration of the cellular structures.

Neither in the cerebrum nor cerebellum is there any pronounced change in the support elements. The Deiter's cells stain in neither region with any frequency, while the large bodied vascular cells do not seem to take on any altered action, clinging to and surrounding the vessels after the usual manner.

Before concluding this paper let us glance for a moment at the clinical picture of chronic alcoholism in order to see in what manner the pathological lesions and the symptoms correspond with one another. The epiphenomena of chronic alcoholism are so numerous that it will be difficult to do more than sketch the most prominent symptoms; first come the sensory disorders, the exaggeration of the sensibility of the skin, the anæsthetic symptoms, the ocular and auditory troubles, then follow the tremor, the tremulous articulation, the loss of tone in the muscular system, the tottering gait, the occasional paretic attacks, the incoördination, and lastly the intellectual disorders, the loss of moral force, the weakening of the mental faculties, the falsification of the judgment, the slowness of memory, and finally the dementia, which is never complete.

The first of the three periods would correspond to the beginning of the vascular disorders, when the nerve cells irritated by the presence of a poisonous stimulus and an insufficient supply of proper nourishment overact for the time, and then as nutriment is still withheld from them, altered matabolism results. The beginning swellings of the dendrites of the sensori-motor region is marked by paræsthetic and anæsthetic symptoms, those of the purer sensory regions by visual and ocular troubles, and some amnesia, especially for recent events, or in other words, cells that have the function of evolving thought cannot work properly, and defective memory results. Later as the motor cells become more and more involved, and nuclear changes begin, continuous tremor becomes apparent, the muscles no longer coördinate perfectly, unless for a moment under the direct influence of the will; still later when a portion of the cell structures become highly degenerated, and the altered cells have become more numerous, the already tottering will power becomes less and less active, judgment, memory fail and when

the degenerative process has far advanced an incomplete dementia is the final result.

In conclusion we do not consider the fact that only a portion of the cells of the cerebrum are involved in the degenerative process, militates aught against the entire conception of the pathological entity. The nerve elements of the brain are intricately united one with another by means of their axôns and collaterals, and are not able to function completely unless the normal relations one to another are preserved. A lesion in one cell will induce disorders in the function of two or more cells not involved by any morbid change, the intricate system of collaterals issuing from one cell influencing directly the impressions and nervous forces arising from many others, and in this way a wide spread disordered action of large numbers of the cerebral cells may be the result of disease in a comparatively few elements.

In the human being we have found the same degenerative process present as in the rabbit, varying only in degree, in some more intense, in others less so, but as the pathological lesions in chronic alcoholism in the human subject will form the basis of a subsequent paper, it will suffice here to say that they are practically identical, with those in the rabbit.

Whether the swellings and degeneration of the protoplasm of the neuron is characteristic of the results of the action of alcohol upon the nerve elements, our later studies alone will determine.

THE NOMENCLATURE OF INSANITY; AND OBSCURITY IN ITS DIAGNOSIS.

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From time immemorial it has been the custom throughout the civilized world to define all qualities, whether of matter or spirit, by some name, that the mind may have in a succinct form, something by which a single object, the result of an association of ideas, can readily be suggested. Thus, when we see the name of an object, we at once, through the power of mental association can call forth that which is represented by the name in all its quantities, no matter whether it be something tangible, possessing length, breadth and thickness, etherial, such as gases, or that which is the very essence of life spiritual, which places all humanity in direct relation with the Deity. Unfortunately, however, language, by which an interchange of ideas can be expressed, is too crude to convey the same idea to each individual in pursuit of truth, hence the simplest words rarely convey to every one the same meaning; and when we depart from the primitive words, the nice appreciation of their meaning is seldom reached even among the most learned philologists.

If truths, which we obtain through the avenues of the various senses, are so difficult to master, how much more difficult it is to find them when hidden by an outer canvas with myriads of labyrinths beneath.

Nothing short of a clairvoyant mind could unfold unerringly those things which the public thinks the physician should know. This fact surrounds a member of our profession with many embarrassments, especially if he be a conscientious and candid man.

We study things too much by name and are too prone to be guided in our treatment by the nomenclature, which medical authorities have seen fit to give to a combination of the symptoms.

No profession, whether it be learned or unlearned, is so discouraging to the student as that to which we belong. The lawyer masters truths, which will be perpetuated through time, because jurisprudence is founded on a sense of justice, which every man instinctively feels that he owes his fellow man.

The same may be said of mathematics, and its allied sciences, chemistry and physics. When these sciences are mastered their votaries are inspired with a confidence which springs from the feeling that the truths acquired are fixed and immutable; but not so with the members of the medical profession. They retire at night feeling that something definite has been reached and settled, but on the advent of the morning, the daily journal, the advance guard of intelligence, enunciates new theories, subversive of their preconceived opinions; and thus they are constantly pendulating between the old and the new.

We are thus frequently beset with many difficulties, over which we have no control; hence the importance of adopting new theories with care, lest we again become victims to theories as absurd as has been Brown-Sequard's "elixir of life," *et id omne genus.*

While I claim to be strictly loyal to my profession, I am not so loyal as to call it a science in its purity, but rather believe that it is a high and most respected art, fortified by many collateral sciences.

When a common cause is put in operation in all sciences, the results will be uniform—but unfortunately, that which militates against the medical profession is that we have to deal with individual things, whose coefficients and exponents do not stand for the same measure of value. When we see the figures one plus one we know the result is two, and can be nothing but two; but when we give to two individuals the same dosage of medicines under the same surroundings as to sex, age, nationality, climate and hygiene, we should not expect to be disappointed if we believe medicine to be strictly a science—but we all know the results will not be exactly the same; that which embarrasses us is that every patient is a different individual in every respect.

If we find it difficult to diagnosticate and treat diseases located in the ordinary organs of the body, where we have all the advantages of vivisection and general pathology to guide us, how much more difficult will we find it to penetrate successfully the conditions of the most important and subtle structure of the animal economy, viz., the brain and general nervous system, which, beginning with the former, the organ of intelligence, is followed by the latter, ramifying through every tissue of the body. The nervous system is really the man, all other parts being

supplementary for its preservation. It is so important that wherever the most essential portions necessary to the well-being of man are near the surface, they are well guarded by a bony structure to more thoroughly secure them against the daily accidents of life.

We are quite as much at a loss to account for the action of the nervous system as are the electricians for the mode and transit of electricity. Nerve force and electricity are doubtless closely allied, but are too subtle in their operations for a finite mind to grasp; that which we speak of as progress in electricity is only in its results.

Philosophic inquiry has ceased to advance towards the ascertainment of its modus operandi, but is content to utilize it as the grandest and most diversified power within the domain of knowledge, standing in the same relation to the physical world as does the nervous system to the animal.

From the lack of knowledge of the operations of the nervous system, is it strange that the most learned men, who have grown gray in the study of nervous diseases, should widely differ in the nomenclature which they give to certain nervous manifestations? The study is too intricate to arrive at conclusions with the same facility that we study diseases of the various organs of the body.

Without the nervous element, all diseases would be what are termed organic, but nervous ailments, unlike general tissue diseases, may be so obscure that it is found exceedingly difficult to discriminate between functional and organic varieties.

Diseases affecting the intellectual functions are presented in quite a variety of forms, and have been arranged in divisions according to the different forms of delirium which obtain. There are and have been great difficulties in a nosological arrangement. The ancients recognized only three, viz.: melancholia, characterized by great despondency; mania, when the delirium was of a violent character coupled with restlessness and great mental excitement, (and when attended by fevers was termed frenzy); amentia or dementia, in which the mind had gravitated into a condition close akin to idiocy.

Arnold, in a learned treatise distinguished ideas from notions; the former he termed the result of perceptions of sensation, the latter perceptions of reflection. These he divided into nine

species and sixteen varieties, which classification, if adopted, would lead us into great confusion without any special advantage. He has been followed by many authors equally insane in the elaboration of names, the mere shadows of symptoms, which no clinician will attempt to follow; but I leave this study to theorists, who propose to rival Methuselah in years, as nothing short of this age would impart proficiency in their nomenclature.

After an experience of many years at the Jackson Insane Asylum, I find it quite difficult, for a time, to classify mental diseases with acccuracy, although giving myself the benefit of a very restricted nomenclature, for the reason that each case has peculiar manifestations, which require sifting before there can be proper classification. The nervous system is so responsive to various influences that nothing but association with the individual cases will enable one to become familiar with all the phases of disease presented by the same patient even in one day. Independently of the natural obscurity, many causes, both of a physical and moral nature, may engraft new features on the disease, thereby enhancing the obscurity of an already obscure disease.

This is a practical and certainly progressive age, and in view of these facts writers on insanity have endeavored to simplify the classification, that the best results may obtain.

The most modern and conservative writers limit insanity to but few varieties, embracing melancholia, mania, typho-mania, dementia, moral or emotional insanity, general paresis, with other additions, but each in accordance with his taste in these discriminations. These general classifications are in the main simple; and simple subdivisions of them will enable one to arrive at conclusions more in accordance with the teachings suggested by common sense. When we speak of melancholia, the first on the list of this general classification, there are but few physicians who do not readily understand what we mean. Following this classification we have mania characterized by great excitement of ideas and a restlessness, with a constant desire to walk and insomnia. Next in order is typho-mania, a variety of the preceding, which is attended with a typhoid state from the beginning and frequently terminates fatally. Dementia, which follows, implies great feebleness of mind, unaccompanied by manifestations of excitement except rarely. This form, like the preceding, may be either acute or chronic; if the former, it is ordinarily the result of con-

tinued fever and frequently terminates happily. Next in order is moral or emotional insanity, which is quite interesting in its bearing on mental jurisprudence, and is a variety of mental trouble which is exciting more controversy than all others. The trend however, of the profession, is to eliminate moral insanity as a specific variety, but as an humble follower of Ray and a few other bright lights, I feel that I am sustained by personal observation. Ray and some others believed that the portion of the brain presiding over the moral faculties could be diseased without any involvement of the intellectual structure, which if true, would account for the departure from a high moral standard in some whose life has been without blemish and whose reasoning is without fault. We have many other varieties, but as this paper has grown beyond the limit of the text, will conclude by calling your attention to a comparatively new disease, viz., general paresis, which although of late years it has become quite common in the North and Europe, has claimed but few victims in the South. This we esteem a most fortunate circumstance, as no well authenticated cases have been relieved by hospital care. This variety is slow in progress, but presents symptoms by which it is easily distinguished. Soon after its accession it is marked by grandiose and exalted ideas, inducing the victim to believe that he is worth millions and can accomplish most herculean tasks. During the course of this disease, the symptoms are frequently so amended that one imagines he will have a cure, but as stated above none are relieved. There is still another variety of brain disease, which we mention, viz., epilepsy, but our experience in common with all candid observers can offer nothing new. Of course there are many varieties of insanity unnoticed, but I have endeavored to touch the salient points of the most important, and in doing so have given quite a liberal construction of my text.

A CASE OF SUDDEN BLINDNESS AND SUDDEN RESTORATION OF SIGHT.

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The notes of the following interesting case were taken by Dr. J. B. Loughary, second assistant physician.

Oliver Johnson, aged 44, weight 110 lbs., nativity Norway, occupation cook. Admitted to the Western Washington Hospital for the Insane Jan. 5th, 1895, by a commitment from Jefferson County. He is a widower with four children, the youngest one year, all enjoying good health. His father died at the age of 82 from old age. Mother died at the age of 77 from pneumonia. Ten brothers, three living, and seven dead. Ages of the living, 54, 52 and 46. Health good. One died at the age of 33—lost at sea. One died at the age of one year from diphtheria. Two stillborn, one in infancy, and balance unknown. Two sisters living, ages 42 and 49, health good.

While in Russia in 1866 suffered an attack of cholera. Was nine months in regaining his health. Says he made a good recovery. Suffered from brain fever in 1868, confining him to the house for the greater part of five months. Recovery good, so he says. Suffered a sunstroke in California in 1877, remaining unconscious for sixty days, during which time he was fed with a tube. Became insane Nov., 1877, and was committed to the Napa Hospital where he remained nine months when he made his escape and went to sea for two years. Was married in Oakland, Cal., in 1880, and soon thereafter returned to the sea for another year. Came to Port Townsend, Wash., in 1884, where he followed the restaurant business for six years. In the fall of 1888 while on a trip to the old country by steamer, he dropped into a deep sleep or stupor, remaining unconscious for a number of hours. His pulse ran slow (less than 50 per minute), flesh cold and clammy and to all appearances he was dead. The ship's physician attended him, but was unable to arouse him or to give the nature or cause of his trouble. After returning to consciousness he knew nothing of what had happened and felt as if he had awakened from a natural sleep.

After returning to this country the following year, he suffered another attack lasting three days. Dr. Lyall of Port Townsend attended him and pronounced his condition a "trance." Following this at irregular intervals he suffered like attacks lasting from a few hours to three days.

His wife died in June, 1894, from childbirth complicated by pneumonia. For eighteen months previous to her death she suffered from some form of paralysis requiring his entire attention, with consequent loss of sleep and loss of strength. The strain on his mind from the death of his wife and his weakened physical condition, threw him into a nervous prostration

which he claims is the cause of his losing his mind. During all of this time he suffered at irregular intervals the unconscious spells referred to above.

On November 11, 1894, he laid down for a nap and was awakened about one hour thereafter to find his eyesight entirely gone. Everything appeared black before his eyes. There was no pain, no dizziness, no paralysis of the muscles of the eye. Pupils responded to light. No irritation or inflammation. To all appearances the eyes were perfectly healthy. Were not examined with the ophthalmoscope. When he entered the hospital he weighed less than 100 lbs., was very weak, thin in flesh, restless and sleepless, appetite poor, and bowels constipated. He soon improved in flesh, gaining 13 lbs. in six weeks. His sleep improved also, with a few doses of medicine. During the first three months he had some three or four spells of unconsciousness lasting for about twelve hours. If he remained quiet and was not disturbed he would sleep them off and wake up as from a natural night's rest, but if disturbed in any way he would jump upon his feet and relate something about his wife and perhaps strike out with his fist. When not in these spells his mind seemed clear, and he would talk intelligently and was a very pleasant man in every way. The only thing he complained of was occasional pain in the back part of his head, at other times in his eyes as if in the eyeballs. These pains were severe at times. One peculiar feature was an increase in the sense of touch, so much so that he could tell the different coins and their value, and if given a deck of cards could tell each and every one of them by running his fingers over them. He was given iodide of potassium in ten grain doses three times a day, but it disagreed with him and was dropped in four days. After this the sense of touch gradually disappeared, the iodide causing a tingling in his hands and fingers. After stopping the medicine for three weeks he began again and continued for ten days. About a week after dropping the iodide he noticed his sight changing slightly from darkness to milkiness with an increase in the pain in the eyes and back of the head. This milkiness continued stationary for about six weeks when he began again on iodide in 20 grain doses three times a day for nine days. Soon after this he noticed his eyesight getting better but the pain continued. He could detect a bright light before his eyes, then he could see a match or dim candle. This condition remained for about eight or ten days when, on March 25th, 1895, while saying his prayers before retiring he noticed his sight had suddenly returned, his pain had disappeared, and he was a happy man again. He had one of his spells a few hours before his sight returned and has not had one since (two months), the longest time he has gone without an attack since his stay in the hospital. He is now troubled with loss of appetite, loss of flesh and of strength. Pain and distress in region of stomach. Bowels constipated, a great deal of gas in the stomach, and dizziness, but the mind remains clear. He was blind just four months.

This is the first case of sudden blindness coming under my observation. It is also the first case of sudden recovery from blindness I have seen. In looking up the pathology involved it may not be amiss to recall briefly the organs of vision. First the

eyes, then the optic nerves, terminating in the commissure or optic chiasm. Then the optic tracts, beginning at the commissure and passing around the crura cerebri and terminating in the optic thalami, the corpora quadrigemina, and corpora geniculata. "From these three masses of grey matter new fibres start out which issue from the outer side of the optic thalamus, enter the internal capsule, and curve backward through the occipital lobe, lying on the outer side of the posterior horn of the lateral ventricle, and thus reach the occipital convolutions, ending chiefly in the cuneus." (Starr). The termination of the fibres of the visual tract is called the visual area, and as just stated, in man is limited to the convolutions of the occipital lobe.

Starr says: "The character of the blindness produced by the destruction of this cortical area is peculiar. It is termed bilateral homonymous hemianopsia, that is, a blindness in the like-named halves of both visual fields. When the right occipital lobe is affected the patient can not see any objects lying to the left side of the middle line as he looks forward. This peculiar form of blindness is easily understood by a consideration of the anatomy of the visual tract. * * * It is seen that each optic nerve divides into two parts at the optic chiasm. The larger part crosses to the opposite optic tract; the smaller joins the optic tract of the same side. Each optic tract then contains fibres from both eyes. It is found that the fibres from the temporal half of the retina, which receives impulses from the nasal half of the visual field, do not decussate. Hence a lesion of the right optic tract will cause blindness in the nasal half of the visual field of the right eye. Fibres from the nasal half of the retina, which receives impulses from the temporal half of the visual field, do decussate with those of the opposite side. Hence a lesion of the right optic tract will cause blindness in the temporal half of the visual field of the left eye. Therefore a lesion of the right optic tract causes a loss of function in the right half of both retinæ, and as a consequsnce the blindness is limited to the left half of both visual fields. Both eyes are affected, the blindness is bilateral; it is but one-half of the vision which is lost, the blindness is therefore called hemianopsia; and like-named halves of the visual fields are blind, hence the term bilateral homonymous hemianopsia."

Lesion anywhere in the course of the visual tract, from the optic chiasm to the cuneus will cause bilateral homonymous hemi-

anopsia. If the lesion occur at the crus cerebri, there is apt to be hemiplegia of one side, and oculo-motor paralysis of the other, combined with the hemianopsia. If at the thalamus, there will be a combination of hemianæsthesia, hemiplegia and hemianopsia. But if in the occipital lobe or cortex, none of the other symptoms will be present.

The lesion in this case then may have been in the occipital lobe or cortex of both sides of the brain, making double hemianopsia.

Hirt says: "If in the region of the visual centre or the optic radiation a bilateral focal lesion occurs, then we have complete blindness setting in with an apoplectiform attack. This is in reality a bilateral hemianopia."

As this patient was subject to epileptiform attacks it seems probable that his disease was a double hemianopsia.

DISCUSSION.

Dr. H. A. Tobey: I would like to relate in this connection a case that came under my observation. He was a young man, of about 24 years of age when I saw him last, about fifteen years ago. He said that his mother thought that he became totally blind at seven or eight months of age. At the age of 13 he was placed in the blind asylum at Columbus and remained there until 17 years of age, when suddenly he fell down and lost his hearing and speech both. He remained in that condition for six to eight weeks when suddenly his eyesight came to him. He was nearly frightened to death. He was then transferred to the deaf and dumb asylum and stayed there till 22 years of age and then went home. In a year or a year and a half his hearing came back, and after that he had seizures of epilepsy every three to six weeks. With it all he was a pretty bright fellow.

Dr. George S. Adams: It seems to me that in this case there was no lesion in the brain, but that it was purely psychical and the blindness occurred just as these trance conditions occur.

Dr. Adolf Meyer: There are quite a number of cases of hysterical amaurosis on record that would perfectly compare with the history related in this case, and considering the peculiar trance condition I should hardly hesitate to call the case one of hysterical amaurosis.

To illustrate the great variety of functional defects of vision, I should like to mention a case that was observed in the Heidelberg

Clinic for Mental diseases: A woman, who was suffering, I believe, from melancholia or confusional insanity, showed a very remarkable hemianopsia,—a double hemianopsia of both lower quadrants. The disorder of vision appeared rather suddenly, and disappeared with the mental affection. So far we are unable to explain in any way how through a functional trouble or through an organic lesion of the occipital lobes, a defect of the field of vision beneath the horizontal line could originate. I simply mention this as a rather puzzling case that perhaps might find its equal in our hospital experience. At any rate, we should never be surprised to find almost any disorder of vision a functional one. Even if it seems to be typically organic we have to exclude the probability of functional trouble.

Memorial Notices.

E. EVARISTE DUQUET, M. D.

By T. J. W. Burgess, M. D., Montreal, P. Q.

Dr. Emmanuel Evariste Duquet was born in Ste. Philomene, Chateauguay County, Quebec, April 3, 1855, his father being Francis Duquet, farmer, of that place.

His early education was received at Beauharnois College, where he spent three years under the tuition of the Christian Brothers. At the age of thirteen he was taken from college to assist his father on the farm, but with a natural aptitude for study, whetted by his brief residence at school, his every spare moment was devoted to augmenting his literary knowledge. His parents dying when he was but sixteen years of age, he was thrown on his own resourses. Quitting a farming life, for which he had no taste, he went to Montreal, fully determined to carve out for himself a professional career. At the age of twenty he entered on the study of medicine, and received his degree therein from Victoria College, Montreal, in April, 1879. Immediately after graduation he started as a general practitioner at Longue Pointe, one of the suburbs of Montreal, and soon became well and favorable known as an exemplary citizen and capable physician.

In 1885 Dr. Duquet was nominated assistant physician to the St. Jean de Dieu Asylum, better known as the Longue Pointe Asylum, and from that time forward he devoted himself entirely to the study of mental diseases. His opportunity for observation and study was improved to the utmost, and in 1887, upon the death of Dr. Hovard, medical superintendent of the institution, he was appointed by the Provincial Government to the vacancy thus created, a position he efficiently held up to the date of his premature death.

In spite of a naturally delicate constitution, Dr. Duquet never spared himself in his untiring efforts to improve the condition of his unfortunate charges, who, at the time of his demise, numbered no less than 1,300. The severe strain from the increasing mental and physical labor connected with so large an institution gradually

undermined his health, and rendered him unable to combat an attack of pneumonia, with which he was seized, and to which he succumbed after an illness of only eight days' duration. The end came on the evening of Wednesday, December 19, 1894, long before the age which men count fit, he being only in his fortieth year. A two-score years of greater usefulness it would be difficult to find.

The subject of the classification of mental disorders was ever a favorite one with Dr. Duquet, and his remarks thereon in the psychological section of the medical congress, held at Philadelphia in 1887, were most favorably commented upon by all who heard them.

During the summer of 1889 Dr. Duquet made an extended tour in Europe, visiting many of the principal asylums. He also attended the International Congress on Mental Diseases, held at Paris in August of that year, where his observations on "Legislation Concerning Insane Asylums in the Province of Quebec" were listened to with marked attention. These observations, together with an able paper from his facile pen, entitled "Notes sur un Cas de Folie Simulée," were published in the report of proceedings by the general secretary for the congress, Dr. Antonie Ritti. The favorable impression here made upon his European confrères was testified to by his election, in November, 1889, as an associate member of the Medico-Psychological Society of Paris. In 1890 a similar honor was conferred upon him by the "Société de Medicine Mentale" of Belgium.

The following letter in connection with his election to the former society speaks eloquently of the regard Dr. Duquet had won for himself:

PARIS, November 28, 1889.

DEAR SIR AND CONFRERE: I have the honor to inform you that the Medico-Psychological Society of Paris, taking into consideration the conclusions of my report on the work of the International Congress on Mental Diseases, unanimously elected you an associate member.

I am delighted at this decision, as it brings to our society a colleague whose work it justly holds in high esteem. I interpret its sentiments in assuring you of our cordial congratulations.'

Accept, dear sir, again my hearty good wishes.

THE GENERAL SECRETARY,
ANTONIE RITTI,
State Asylum of Clarenton.

Dr. Duquet was a man of fine presence, and of fluent delivery in either French or English. He was a cheerful, generous, warm-hearted friend, possessed of broad sympathies; a well-read physician of wide and varied culture. Though a devout Roman Catholic, he was devoid of any sectarian narrowness, but, instead, full of a large and charitable spirit to all mankind; firm in his support of what he deemed right, but tolerant of all honest difference of opinion. In short, he belonged to the highest type of asylum superintendent.

Dr. Duquet was married, in 1884, to Rose A., daughter of Mr. Edward Quinn of Longue Pointe, a union which was a source of great happiness to both. Three children were born of the marriage, who, with Mrs. Duquet, survive him.

At the meeting of the Montreal Medico-Chirurgical Society, held January 25,1895, Dr. W.H. Hingston, in moving (seconded by Dr. T. J. W. Burgess) that the society record its sense of the great loss it had sustained by the death of Dr. Duquet, added the following justly merited tribute:

"Dr. Duquet's was one of those quiet, reserved, retiring dispositions, which secured for him the respect and esteem of his professional brethren."

His appearance was that of a gentleman; his manner was dignified, and gave one the impression of great reserve power.

The members of the society present at the congress at Philadelphia, in 1887, will remember the favorable impression created in the section on psychological medicine by the calm, clear, judicial manner in which he submitted his views on a new classification of mental diseases. I was present at that meeting, although not in that section, and several of the distinguished alienists informed me of their warm appreciation of the able manner in which he laid down his views, and the clearness and lucidity of his method.

Toward his professional brethren he was delicately honorable, and his death, at so early an age, was a matter of universal regret.

GEORGE CULVER PALMER, M. D.

By C. B. Burr, M. D., Flint, Mich.

Dr. George Culver Palmer, a distinguished and much beloved member of this Association, died at Oak Grove, Flint, Michigan, on the 17th day of August, 1894.

He had been in somewhat impaired health for several years, the failure dating from an attack of pleurisy in 1888, but he did not become seriously ill until April of last year.

At the meeting of the Association in Philadelphia in 1894, much concern was expressed about him and the result proved that apprehension well founded. After a painful illness of several months' duration, due to a complication of renal and cardiac disease, death came, and a life full of humane impulses and abounding in good deeds and noble achievements was terminated. His tender, sympathetic ways and winsome nature are well known to the members of this Association with whom he was deservedly popular. Reserved, retiring, unobtrusive, modest, of excellent judgment and ripe experience, a most solicitous and accomplished host, a warm-hearted friend, he endeared himself to all who knew him. He was a natural physician, thoughtful, of fine discernments and possessed of an intuitive knowledge of disease truly remarkable. His refinement of feeling, exquisite sensibilities and unaffected devotion to their interests, inspired in his patients a filial affection. His manner was at times droll and he displayed a delicate touch of humor in repartee which made him an engaging companion. Incapable of unkindness but with an insight into character, a keen perception of personal peculiarities, a strong imitative faculty and an almost boyish disposition to probe and tease, he derived much amusement from life and kept others about him in good humor.

Dr. Palmer was born in Stonington, Connecticut, December 27, 1839. His early education was obtained in the country schools. He prepared for Brown University in the Connecticut Literary Institute at Suffield, but subsequently changing his plans entered the literary department of the University of Michigan in 1860. In the literary department he spent one year, subsequently entering the medical department and graduating therefrom in 1864. Immediately afterward he received an appointment in the Asylum for the Insane at Kalamazoo. There he served as Assistant Physician until 1872, and as Assistant Medical Superintendent for the following six years in the strong staff composed of Van Deusen, Palmer, Emerson and Hurd. In 1878 he was elected Medical Superintendent which position he occupied until 1891, when he resigned to assume the duties of Medical Director of Oak Grove. Although his contributions to medical literature are not numerous, he was a vigorous, forceful and persuasive writer. He

distrusted his ability to write and once remarked to Dr. Hurd that "some people wrote for fame but he because he must." The satisfactory development of the colony system in Michigan is largely due to his efforts and the opponents of State care of the insane found in him a determined, steadfast and earnest adversary.

"He was" says Dr. Hurd, "singularly amiable and thoughtful of the wishes and preferences of others, and many persons who saw only this side of his character, misjudged his firmness of purpose, his tenacity of principle and his strength of conviction. Although he reached conclusions slowly and only after patient thought upon every side of a difficult subject, when his mind was once made up he was immovable. He had the tender heart of a woman in the frame of a man and intuitively shrank from giving pain or distress to any human being. The writer (Dr. Hurd) who knew him intimately for more than thirty years can truthfully say that his was the purest, noblest, kindest, most self-sacrificing nature he ever knew."

FRANCIS TAYLOR FULLER, M. D.

By P. L. Murphy, M. D., Morganton, N. C.

Dr. Francis Taylor Fuller died at the North Carolina Insane Asylum, Raleigh, on the 14th of September, 1894. He was first assistant physician of that asylum, a position he held for nearly forty years.

Francis Taylor Fuller, was born in Granville, N. C., June 14, 1835. He was a descendant of Esquire John and Lady Anne Taylor, who came to America early in the eighteenth century. A brother of John Taylor was an ancestor of Presidents Madison and Taylor, and other persons of distinction in North Carolina and Virginia.

Dr. Fuller's early education was obtained at the South Lowell Academy in Orange County, N. C. In 1851 he left the academy and returned to Granville County where he taught school for a time, and subsequently took up the study of medicine, under the direction of Dr. William R. Hicks of Oxford, and in 1854 became a student at the medical department of the University of Pennsylvania. In the summer of 1855 he placed himself under the tutelage of Dr. Charles E. Johnson, late of Raleigh, and remained with him until his return to Philadelphia, to re-enter the university, from

which he was graduated in 1856. After his graduation the young physician was requested by Dr. Charles E. Johnson, then the acting superintendent of the North Carolina Insane Asylum, which had been opened in February, 1856, to assist him in his duties, and soon after at a meeting of the board of directors, Dr. Fuller was elected first assistant physician, which position he held until his death. For twelve years he served under Dr. Edward C. Fisher, who was succeeded in 1868 by Dr. Eugene Grissom, who held the superintendency of the asylum until September, 1889.

During his long career, Dr. Fuller evinced wonderful ability in the care of the insane. He brought to his work a mind thoroughly prepared by study and inclination for the profession he had chosen. The reputation of his skill had spread throughout the length and breadth of the State, and the people of North Carolina reposed esteem and confidence in him to a marked degree.

He remained at his post when others failed; his words of cheer and hope supplemented his medical skill in calming and restoring reason to many. The hundreds who have been returned to society from the institution have cause to feel the utmost gratitude for his kind ministration, and his merit and goodness and sympathetic disposition and unselfish devotion to his charge are recognized throughout the State. Quietly he pursued his course, not seeking promotion and fame, but the latter came to him unasked, and promotion he had the privilege to decline. In 1882 he was appointed a director of the State Hospital at Morganton, N. C., and besides his other arduous duties, he filled that position until 1889. One of the most important labors of his life was in connection with that institution. He was greatly interested in securing its establishment, and he was influential in its organization, for the superintendent of the new institution was unknown to the members of the Directory, and they themselves, with the exception of Dr. Fuller, had had no experience in the management of a hospital; all of them were successful business men and perhaps for this very reason saw only one side of hospital management, and were unable to understand many little things which are so important in the aggregate. Dr. Fuller by reason of his tact was readily listened to by his fellow members of the Board, and this gave the greatest assistance to the superintendent in his duties. And this was not all, his greatest help to the superintendent was not with the Board, but to him individually, in the organization and administration of

hospital affairs. Had he not virtually refused the advancement, he would doubtless have been elected superintendent of the new institution, but he preferred to retain his position in the North Carolina Insane Asylum, to which he was attached by reason of his long association with it, and with his friends in the city of Raleigh.

Dr. Fuller took pride in his profession, and was a member of the Raleigh Academy of Medicine, of the N. C. State Medical Society, of the American Medico-Psychological Association and of the Medico-Legal Society of New York. He was a member of the Protestant Episcopal church and a vestryman of Christ church, Raleigh. As a citizen he was of the progressive order, and among men he was esteemed and respected for his moral and intellectual culture; socially, he was pleasant, affable and courteous. He was unostentatious and unassuming in character, and was respected for his meekness and mildness of temperament. Not only was he a man of kind and unselfish heart, but especially was he charitable in disposition, and many have been his gifts to charity, but given in a quiet and unpretending way.

JUDSON BOARDMAN ANDREWS, A. M., M. D.

By G. A. Blumer, M. D., Utica, N. Y.

Rarely has the news of the death of one of our brethren come with so great a shock or occasioned such widespread sorrow in our ranks as that of the departure from this life of our dear friend Andrews. His splendid physique and stout heart, as recalled by all who knew and loved him in health—and who did not?—bespoke for him much more than man's allotted span of years. He was missed from the meeting of our Association last summer, when the current report had it that he was suffering from an obstinate form of dyspepsia, for which change of air and relief from duty had been prescribed with the hope and expectation that he would be restored in due course to his wonted physical vigor. But alas! disease was stealthily gnawing at his vitals, sapping the strength of his sturdy frame, and gradually tightening its grasp upon a brave patient, who bore the discomfort and pain of his malady with singular and characteristic cheerfulness and fortitude. Final relief came in the evening of Friday, August 3, 1894.

Judson Boardman Andrews was born in North Haven, Conn., April 25, 1834. He was descended on his father's side from William Andrews, an early settler of New Haven, who sailed from Hampsworth, England, in 1635, and on his mother's side from a brother of Elihu Yale, the founder of Yale College. His preparatory education was received at the Hopkins Grammar School of New Haven, from which he entered Yale College in the class of 1855 and was graduated in course. The degree of Master of Arts was conferred in 1858. After graduation he taught school until he began the study of medicine in the Jefferson Medical College in Philadelphia, in 1857. At the close of the lecture course he resumed teaching in Saratoga County, N. Y., and was engaged in this profession at the opening of the war.

In the spring of 1861 he joined the Stillwater Company of Zouaves, which had been organized and drilled by Colonel Ellsworth. The death of this famous commander, whose family resided in Mechanicsville, where Dr. Andrews was then teaching, aroused his patriotic ardor and proved the turning point in his future course. He enlisted in the Seventy-seventh New York Volunteers, the Bemis Heights Regiment, which was recruited in Saratoga County, and was elected captain of Company F. The regiment was assigned to Franklin's Corps of the Army of the Potomac, and took part in the Peninsular Campaign against Richmond, participating in the siege of Yorktown, the battle of Williamsburg, Mechanicsville, Savage Station, White Oak Swamp, and Malvern Hill. After the retreat to Harrison's Landing in July, 1862, the young soldier resigned his commission on account of ill health, and returned to New Haven, where he completed his medical studies and received the degree of M. D. from the Yale Medical School in February, 1863.

To fit himself for service in the army he entered the Germantown Hospital as medical cadet, and in July having passed the State examination, was commissioned assistant surgeon and assigned to the Nineteenth Connecticut Volunteers, which was on duty in the fortifications about Alexandria, Va. The regiment was subsequently changed from infantry to heavy artillery, and was designated the 2d C. V. A. When Grant assumed command, this, with other artillery regiments, was ordered to the field and assigned to the Sixth Army Corps, with which it served during the war. It took part in the battle of Cold Harbor, in which it

lost 129 men, killed and mortally wounded. This gives it the first place among the regiments of the Union army in members killed in any single engagement, while its losses in killed during the war, 254, makes its record a notable one.

In July, 1864, the Sixth Corps, to which it belonged, was sent from the front of Petersburg to the defense of Washington, and was afterward assigned to duty in the Shenandoah Valley under Sheridan. In this campaign it was engaged in the battles of Winchester, Fisher's Hill, and Cedar Creek. The following December it was returned to Petersburg to its former position in the Union line, and fought at Hatcher's Run, at the successful assault on the Confederate lines, April, 1865, at Little Sailor's Creek, and was present at the surrender of Lee at Appomattox. The regiment was mustered out of service at New Haven, Conn., in September, 1865. During the whole period of active service Dr. Andrews followed the fortunes of the regiment, doing duty on the field in immediate care of the wounded, and in the hospital of the division. He was detailed as surgeon in charge of a regiment, and at times was the only medical officer present for duty in the field in the brigade. He was one of the first members of the Grand Army of the Republic in the State of New York, having had the degrees communicated to him by Gen. James B. McKean, who was provisional department commander before any post had been established in the State. At a later date he joined the military order of the Loyal Legion.

In 1867 Dr. Andrews was appointed third assistant physician in the New York State Lunatic Asylum at Utica, then under the charge of Dr. John P. Gray. He was rapidly promoted until 1871, when he became first assistant, and he continued in this position until 1880, when on the opening of the Buffalo State Hospital he was appointed superintendent of that institution, a position which he has since held. During his residence in Utica Dr. Andrews won the respect and esteem of all in the institution by his ability and his thoroughness. He was an indefatigable worker, and as assistant physician carried out faithfully and to the letter all the orders of his superiors. He discharged his duties with military promptness and precision, and when acting as first assistant exacted from all the same faithful service which he had rendered. The same attribute characterized him in his administration of affairs at Buffalo. All those in his employ knew the kind of service he

expected, and that he would be satisfied with nothing else. They found him always the same—pleasant, genial, and companionable, not subject to variable moods or caprice, but always devoted to duty. Those who meant to do their duty found him as helpful and kindly as an elder brother. Those who meant to do less, he would not tolerate about him.

On becoming a resident of Buffalo Dr. Andrews was made lecturer on insanity in the Buffalo Medical College. Soon afterward he was elected professor of psychological medicine, and held that position until 1893. In 1886 he was elected president of the Erie County Medical Society. On coming to Utica he was made a member of the Oneida County Medical Society, and in 1874 he was elected a permanent member of the New York State Medical Society. He was one of the founders and one of the most prominent members of the New York State Medical Association, and was president of that organization in 1892. He was president of the section of Psychological Medicine and Nervous Disease of the Ninth International Congress, held in Washington in 1887, and in 1892 was elected the first president of the American Medico-Psychological Association, formerly the Association of Medical Superintendents of American Institutions for the Insane. During his professional career he was a frequent contributor of papers to medical societies and journals. While in the Utica hospital he was for some ten years the working editor of the AMERICAN JOURNAL OF INSANITY and wrote extensively for its columns. His articles on "Phosphoric Acid," and "Chloral" were frequently quoted by medical journals and often referred to by authors of works on materia medica and practice at home and abroad.

Dr. Andrews had always been an advocate of State care for the insane, and aided materially in establishing the system. In the Buffalo hospital he inaugurated and carried to a successful issue the training of attendants as nurses upon the insane. As one of the pioneers of this important movement the Buffalo school furnished an impetus to, and served to popularize, the systematic training of nurses for the insane in the United States. Dr. Andrews was an able, active, and energetic worker in his chosen field of labor, the success of his career as a practical alienist being fully attested by the history of the Buffalo State Hospital, as well as by hie enviable record at the parent institution at Utica.

Dr. Andrews was an active Mason, having been made a member

of Faxton Lodge No. 697 of Utica, which lodge he had also served as master. At the laying of the corner-stone of the Masonic Home in Utica he marched with the lodge of which he was a member. He had received honorary membership in the thirty-third degree of Scottish Rite Masonry.

Dr. Andrews married Agnes, daughter of Hon. Samuel Campbell of New York Mills, who survives, with one child.

Where shall one look for threescore years of greater usefulness—for a stewardship more faithfully discharged? Of whom could we assert more truthfully that duty was his watchword, or that a broader love of his fellowmen animated and permeated his life-work? But one enemy he had, and that one himself, and if self-serfdom be a sin, that one only are we disposed to lay at his door, for had he but studied his own welfare as he was wont to consider that of others, his useful life might possibly have been spared to his family and the public service for several years.

Sadly we shall miss him. His presence everywhere and anywhere was a tonic and an antidote to mental depression. Conspicuous among his characteristics were his common-sense, his bluff geniality, his open candor, and his almost childlike ingenuousness. He was beloved by old and young alike, and all who came within the sound of that cheery voice, or felt the hearty grasp of that good right hand, must deeply mourn that "the voice is still," and sadly, as vainly, wish for the touch of the "vanished hand." How pleasant, too, the memory of the genial, mirthful smile and kindly twinkle of the eye that betokened the sunshiue of a generous soul to all who came within their warmth!

In the death of Dr. Andrews the country loses a loyal son, the State a faithful public servant, Buffalo an exemplary citizen, his family a devoted husband and father, while to American psychiatry the loss is one that must be keenly felt by all his surviving brethren. May peace attend him!

MATTHEW DICKENSON FIELD, M. D.

By William D. Granger, M. D.

Dr. Matthew Dickenson Field died at his residence in New York on the 9th day of March, 1895.

Dr. Field was born July 19, 1853, at Nashville, Tenn.

He was the son of the Hon. Matthew Dickenson and Clarissa (Laflin) Field. His father was a noted civil engineer, a brother of David Dudley Field, the illustrious lawyer; of Cyrus W. Field, whose fame is world-wide, because of his connection with the laying of the Atlantic cable; of Stephen W. Field of the United States Supreme Court, and of the Rev. Henry M. Field, editor of the New York *Evangelist.* Justice David J. Brewer of the United States Supreme Court is a cousin of Dr. Field.

Dr. Field was prepared for college at the Munson Academy, Mass. He entered Williams College and graduated in the class of 1875. He graduated in medicine from Bellevue Hospital Medical College in 1879, and was interne in the Bellevue Hospital from October 1, 1878, to April 1, 1880. He was visiting physician to Charity Hospital on Blackwell's Island for three years, and was inspector in the Health Department, New York City, for two years being employed in detecting typhus fever.

For a number of years he was lecturer upon mental diseases at the New York Polyclinic.

In November, 1882, he was appointed examiner in lunacy for the Department of Public Charities and Corrections of New York City. In October, 1883, he was appointed surgeon of the Manhattan (elevated) Railroad Company. He held both of these positions at the time of his death.

He was frequently called as an expert, in both civil and criminal cases, where the question of insanity was involved. He was a member of the American Medico-Psychological Association, the American Neurological Association, the National Association of Railway Surgeons, the New York State Medical Association, the New York County Medical Association, the New York Academy of Medicine, the New York Neurological Society, the Society of the Alumni of Bellevue Hospital, and the Society of Medical Jurisprudence.

Dr. Field's duties as examiner in lunacy and as surgeon to the elevated road occupied all his time, except that given to consultation in cases of insanity and to expert work, and for many years before his death he retired from all private practice of general medicine.

His labors for the railroad company were not those of a surgeon, and the title of his position, a few years ago, was changed to "medical adjuster," which fully expresses the character of

work he performed. He looked after the interests of the company in suits for damages from injury, and prepared their cases from the purely medical and surgical side. He never, however, went upon the witness stand, either to testify to fact or opinion.

His interest and ambition were entirely in his work as an examiner in lunacy, and his great ability was shown in his efforts in expanding, perfecting, and elevating the system of detaining and caring for the insane, pending their formal commitment and in the scientific examination into their insanity.

His fifteen years of labor at the "insane pavilion" of Bellevue Hospital well exemplified the high order of his talents, as well as his zeal for the welfare of the unfortunates.

All persons suspected of insanity, coming under the care of the public authorities in New York City, are sent to the pavilion for five days' detention and observation, where every opportunity is afforded for their proper care and for careful observation and examination. Dr. Field and his co-examiner visited the pavilion daily. They seldom examined the patients together, but each separately, and united in a certificate if they agreed, and if not, the resident physician was called in and his decision was final in disposing of a case either for commitment or discharge. In this way Dr. Field examined about 2,000 persons yearly for insanity. During the years 1888, '89, '90 and '91, 7,669 persons were admitted to the pavilion. Of these, 5,186 were sent to the New York City Asylum, 495 to other asylums, 893 to other non-insane institutions, 969 were discharged, and 106 died.

He was extremely careful in his examinations, not only of the patients themselves, but in getting all facts from others bearing upon the insanity, such as those showing the cause, the heredity, occupation, the number of previous attacks, and nativity. Whatever would be useful in practical application, or assist in scientific research, he studied to learn. It was his intention to use the knowledge he had gained by publishing the results of his labors. But the end came too soon and too early in his life.

In 1892 he read a paper before the American Social Science Association on the "Examination and Commitment of the Public Insane in New York City." In 1893 he read before the American Neurological Association a paper entitled "Detention Hospitals for the Insane." In this paper he related with care the origin and growth of the pavilion, the methods regulating commitment to it,

and the character of work done by the medical staff. He urged upon that body the necessity of such detention hospitals in all large cities, and asked their coöperation in extending knowledge of the subject, and their influence in establishing like institutions.

It was his intention to bring the subject of detention hospitals before the Medico-Psychological Association and urge its influence to assist in their establishment.

Dr. Field wrote many articles for medical societies. Perhaps his most interesting contribution was upon "Othæmatoma," read before the American Neurological Association, 1892. He took up the subject of "hæmatoma auris" in the non-insane, and exhibited by photographs and living subjects many cases, especially among professional boxers and athletes.

In 1885 he married Lucy Atwater, who with two daughters of tender years survive him.

Dr. Field's final sickness, arising from disease of the heart, confined him to his room many months before his death. A simple service was held at his residence in New York, attended by a large number of prominent physicians of that city. The next day he was laid at rest in the Field burial-ground, Stockbridge, Mass.

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